Unit One: Disaster Preparedness

I. Unit overview, objectives and introductions

A. Unit overview

Unit one will explain what Disaster Preparedness is at the individual and household level. It will summarize the major types of hazards that exist in times of disaster and explain the concept of hazard mitigation. Emphasis will be placed preparedness at home, in the community and in the workplace.

B. . Unit objectives

1. By listening, participating and interacting in class activities, by the end of Unit One participants should be able to accurately:

a. Describe the types of hazards most likely to affect a home and community.

b. Identify steps to prepare for emergencies.

c. Understand the basic concept behind hazard mitigation.

C. Introductions and Icebreaker activity

1. CERT: Putting the Pieces Together

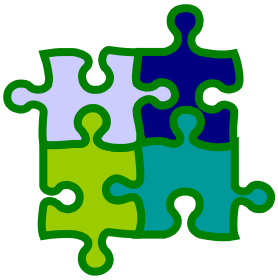
Form a group based on the classroom configuration you are in presently (based on the seating arrangements, tables, location in the room, etc.).

2. Each member of your team must participate.

3. The group has 10 minutes to have each member of your team introduce her/his self to the other members. The introduction should include a name and qualities that she/he feels will be unique and/or helpful to the group as a whole.

For example:

- Jean has great upper body strength and would be good at holding up heavy objects while another person from the group moves a victim from under the heavy object.
- Juan is a very organized person and can keep excellent records with ease.
- Mimeo recently took a Cardio Pulmonary Resuscitation (CPR) and First Aid Class from the American Red Cross. She understands how to bandage wounds and splint broken bones
- Bob is a daycare provider and is happy to watch children while parents respond to emergencies in the neighborhood.



4. Have a member or members of the group record the information everyone shares with the group.

5. Present this information to the whole classroom in 5 minutes or less. Include the whole group in the presentation (no, everyone doesn't need to present, they do have to be present).

6. The Instructor Team will be the first to present themselves as a group to the class.

7. The goal of this activity is first, to meet others in the classroom; second, to figure out how you will begin to function as a team; third, to constantly assess and reassess your aptitudes, strengths, power, talents, as well as those of others around you with whom you will form working groups.

8. The class will revisit this exercise several times during this training as each unit progresses so you can identify what else you bring to the team based on the knowledge base required of each unit.

II. Understanding Disasters

It is important that CERT trained individuals understand that a disaster is different than an emergency. Generally, an emergency, even a major emergency, can be handled by local or regional emergency management personnel. Such organizations are adequately prepared to deal with the short term and long-term demands of an emergency. An emergency may be overwhelming in a temporary sense; a disaster is quite different.

A. Defining Disaster

1. Charles Fritz a groundbreaking researcher of disasters indicates a disaster is unusual and catastrophic. A disaster is either due to accidental or hard to control events society undergoes after an incident that disrupts all or some of the essential functions of that society.[1]

2. Disasters can be:

a. Natural (high water, wind, or earth movement, etc).

b. Cultural (technological, terrorism, choosing to live on a steep slope, living too close to water, or not planning for catastrophe, being uninsured or underinsured, etc.).

3. Regardless of the event, most disasters have several key elements in common:

a. Lives, health, and the environment are endangered.

b. Some are unexpected (technological or act of terrorism).

c. Some natural disasters are more predictable (e.g. storms in the winter, flooding in the spring, etc.) many people are relatively unprepared for them.

d. Available personnel and emergency services may be overwhelmed initially by demands for their services in the response phase of a disaster.

e. Communities, individuals and families may take long periods of time to recover from a disaster, both physically and emotionally.

[1] Fritz, Charles E. 1961. "Disasters." Pp. 651-694 in *Contemporary Social Problems,* Robert K. Merton and Robert A. Nisbet (eds.). New York: Harcourt.

B. The disaster response process

When a disaster occurs there is a well-thought-out and well-practiced response pattern in place for emergency managers. Details regarding professional emergency management are covered in Unit 2 of this manual and CERT organization is covered in Unit 6. The following is a brief overview of the pattern of response and recovery utilized by emergency mangers. It will be the foundation of this chapter, which stresses disaster preparedness.

1. Disaster Strikes (natural or cultural)

2. Individuals and households – have supplies and plans to meet the needs of all their members. This includes shelter-in-place or evacuation, a three-day kit, and communication plans.

3. Local – First responders such as fire, police, and medical professionals work in tandem with community based organizations (such as the Red Cross, United Way or a Community Emergency Response Team) to respond to the immediate needs of the citizens. Local emergency operations centers are utilized.

4. State – Because a disaster can cause local emergency services personnel to be overwhelmed the state becomes involved. The State Emergency Operations Center will be activated and their resources will be applied based on priority need. Native American Tribes are a part of this process as well.

5. Federal – If the President approves, the Federal Emergency Management Agency will set up a joint field office in the affected region to support the response and recovery efforts of the local and state emergency services personnel.

C. It all begins with Individual Preparedness

'Take care of yourself first or you will not be able to care for others!'

This is the phrase you will need to know and understand to succeed in this Community Emergency Response Training program. Notice in the section above that the first response comes from individuals. Whether you are at home or in public, you need to be prepared to take care of yourself during a disaster. This may be until help arrives if you are in great distress, or it may be for as long as three days if you are simply without water or power. If emergency services are overwhelmed you will need to know how to respond to the disaster on your own, and enlist the help of others!

III. Personal Preparedness for the Home

Preparedness is the key to survival in times of disaster so this section of unit one will explore how to develop and practice a disaster plan. The example utilized is for a home plan, but it can and should be adapted to your place of work as well.

A. Ask the "what if" disaster preparedness questions – A disaster plan can mean the difference between life and death during a disaster. Planning for a disaster will help you react in an organized and appropriate fashion should one happen. Test your preparedness by answering as many of the following questions as you can.

1. Where will you meet household members?

2. What route will you take out of your neighborhood if evacuation becomes necessary? Do you have an alternate route in case your route is blocked or otherwise impassable?

3. What will you take with you?

4. Where will you go?

5. What will you need to shelter in place? Do you have those items or enough of those items?

B. You should ask 'What will I do if this happens?' for every hazard that presents a high risk to the community you live or work in. The answers to these questions may be different depending on the hazard. You should have a plan that addresses all of these questions

C. Developing a disaster plan.

1. Contact your local emergency management office and your local chapter of The American Red Cross.

   a) Find out which disasters are most likely to happen in your community.

   b) Ask how you would be warned.

   c) Find out how to prepare for each type of disaster.

Personal preparedness for the home continued

2. Meet with members of your household

.

a) Discuss the types of disasters that could occur.

b) Explain how to prepare and respond.

c) Discuss what to do if advised to evacuate.

d) Practice what you have discussed.

3. Plan how your household will stay in contact if separated by disaster.

a) Pick two meeting places:

- A location a safe distance from your home in case of fire.
- A place outside your neighborhood in case you can not return home.

b) Choose someone out-of-state as a 'check-in contact' for all to call.

4. Complete the following steps.

a) Post emergency telephone numbers by every phone.

b) Show responsible household members how and when to shut off water, gas, and electricity at main switches.

c) Install a smoke alarm on each level of your home, especially near bedrooms; test them monthly and change the batteries two times each year. Change batteries when you change your clocks in the spring and fall.

5. Contact your local fire department to learn about home fire hazards.

6. Learn first aid and CPR. Contact your local chapter of The American Red Cross for information and training.

7. Meet with your neighbors and get to know them.

a) Plan how the neighborhood could work together after a disaster.

Personal preparedness for the home continued

b) Know your neighbors' skills (medical, technical). Share your skills with them as well.

c) Consider how you could help neighbors who have special needs, such as elderly or disabled persons.

d) Make plans for childcare in case parents can not get home.

H. Escape Planning

1. Develop an escape plan that provides for escape from every room. As part of your escape plan:

a) Consider the needs of children and physically challenged individuals.

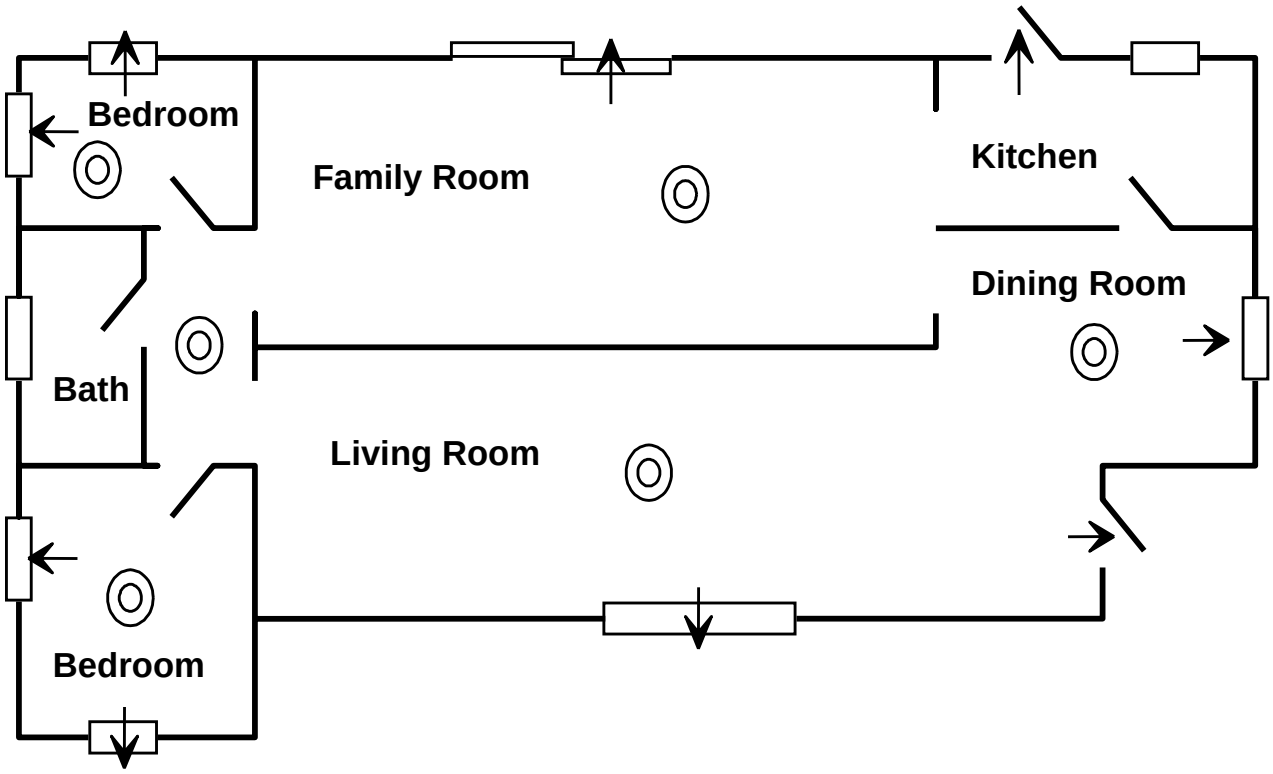
b) Involve all household members in the plan and practice drill.

c) Conduct practice escape drills.

An example of an escape plan is shown in the figure that follows.

Unit One: Disaster Preparedness
Visual One: Sample Household Escape Plan

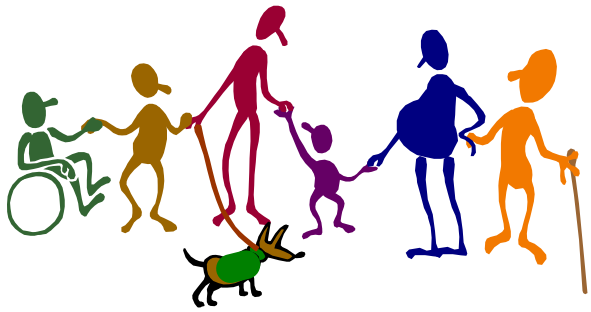
This is an example of a household escape plan with arrows showing an escape route from every room in the home. There are smoke detectors in every room. There is a meeting place outside and away from the home.



Smoke Detector

Escape Routes

Meet Here



IV. Assembling and Storing a Disaster Supply Kit

A. You can cope best by preparing for disaster before it strikes. One way to prepare is by assembling a Disaster Supply Kit. After disaster strikes, you won't have time to shop or search for supplies. But if you've gathered supplies in advance, you and your family can endure an evacuation or home confinement. ***Items marked with an asterisk are recommended for evacuation.** The disaster supplies included on this list is fairly complete, and you should determine the supplies that you will need for evacuation, those that you will need to shelter in place, and those that you will need for both.

1. Evacuation-only supplies such as prescription medications that are required for evacuation and shelter in place should be stored where they can be accessed quickly in an evacuation situation.

2. Shelter-in-place-only supplies such as a 3 day supply of water for each family member should be stored in an accessible location within the home or workplace.

3. Depending on the hazard and situation, the decision of whether to evacuate or shelter-in-place is not always easy. If time and location allow, you should listen to the Emergency Alert System (EAS) for instructions from emergency management professionals who are evaluating the situation.

B. To Prepare Your Kit

1. Review the checklist on the next few pages (from FEMA L-189, ARC 4463) *Your Family Disaster Supplies Kit*.

2. Gather the supplies from the list.

3. Place the supplies you're apt to need for an evacuation in an easy-to-carry container. These supplies are listed with an asterisk (*).

C. Water

1. Store water in plastic containers such as soft drink bottles. Avoid using containers that will decompose or break, such as milk cartons or glass bottles.

Assembling and Storing a Disaster Supply Kit continued

2. A normally active person needs to drink at least two quarts of water each day. Hot environments and intense physical activity can double that requirement. Children, nursing mothers, and ill people will need more. Store 1 gallon of water per person per day, 2 quarts for drinking, 2 quarts for food preparation/sanitation.*

3. Keep at least a 3-day supply of water for each person in your household.

4. If you have questions about the quality of the water, purify it before drinking. You can heat water to a rolling boil for 1 minute or use commercial purification tablets to purify the water. You can also use household liquid chlorine bleach if it is pure, unscented, 5.25% sodium hypochlorite. To purify water, use the table below as a guide:

Unit One: Disaster Preparedness
Chart One: Ratios for Purifying Water with Bleach
After adding bleach, shake or stir the water container and let it stand 30 minutes before drinking.

Water Quantity	**Bleach Added**
1 Quart	4 Drops
1 Gallon	16 Drops
5 Gallons	1 Teaspoon

D. Food

1. Store at least a 3-day supply of nonperishable food. Select foods you normally consume that require no refrigeration, preparation, or cooking and little or no water.

2. If you must heat food, pack a can of Sterno® and a small cooking stove.

Assembling and Storing a Disaster Supply Kit continued

3. Select food items that are compact and lightweight.

4. Include a selection of the following foods in your disaster supply kit:

   a) Ready-to-eat canned meats, fruits, and vegetables.

   b) Canned juices, milk, soup (if powdered, store extra water).

   c) Staples—sugar, salt, pepper.

   d) High-energy foods—peanut butter, jelly, crackers, granola bars.

   e) Foods for infants, elderly persons, or persons on special diets.

   f) Comfort/stress foods—cookies, hard candy, sweetened cereals, lollipops, instant coffee, tea bags.

   g) Food for the animals in your household.

D. Kitchen Items

1. Manual can opener.

2. Mess kits or paper cups, plates, and plastic utensils.

3. All-purpose knife.

4. Household liquid bleach to treat drinking water.

5. Sugar, salt, pepper.

6. Aluminum foil and plastic wrap.

7. Re-sealing plastic bags.

E. First Aid Kit* Assemble a first aid kit for your home and one for each car. A first aid kit should include:

1. First aid manual.

2. Sterile adhesive bandages in assorted sizes.

3. 2-inch sterile gauze pads (4-6).

Assembling and Storing a Disaster Supply Kit continued

4. 4-inch sterile gauze pads (4-6).
5. Hypoallergenic adhesive tape.
6. Triangular bandages (3).
7. Needle.
8. Moistened towelettes.
9. Antibacterial ointment.
10. Thermometer.
11. Tongue blades (2).
12. Tube of petroleum jelly or other lubricant.
13. Assorted sizes of safety pins.
14. Cleaning agent/soap.
15. Latex gloves (2 pairs).
16. Petroleum jelly.
17. Cotton balls.
18. Sunscreen.
19. 2-inch sterile roller bandages (3 rolls).
20. 3-inch sterile roller bandages (3 rolls).
21. Scissors.
22. Tweezers.
23. Aspirin or non-aspirin pain reliever.
24. Anti-diarrhea medication.
25. Antacid (for stomach upset).
26. Syrup of Ipecac (to induce vomiting if advised by the Poison Control Center).

Assembling and Storing a Disaster Supply Kit continued

27. Laxatives.
28. Vitamins.
29. Activated charcoal (used if advised by the Poison Control Center).
30. Batteries for hearing aids.
31. Crutches.
32. Medicine for animals in your home.

F. Tools and Supplies

1. Mess kits, or paper cups, plates and plastic utensils*.
2. Emergency preparedness manual*.
3. Battery-operated radio and extra batteries*.
4. Flashlight and extra batteries*.
5. Fire extinguisher: small canister, ABC type.
6. Tube tent.
7. Pliers.
8. Duct tape.
9. Compass.
10. Matches in a waterproof container.
11. Aluminum foil.
12. Plastic storage containers.
13. Signal flare(s).
14. Paper, pencil.
15. Needles, thread.

Assembling and Storing a Disaster Supply Kit continued

16. Work gloves.
17. Medicine dropper.
18. Shutoff wrench, to turn off household gas and water.
19. Whistle.
20. Plastic sheeting.
21. Kennels for household animals (service animals are permitted in human shelters, however, pets are not).

G. Sanitation

1. Toilet paper.
2. Towelettes*.
3. Soap, liquid detergent*.
4. Feminine supplies*.
5. Personal hygiene items*.
6. Plastic garbage bags, ties (for personal sanitation uses).
7. Plastic bucket with tight lid.
8. Disinfectant.
9. Household chlorine bleach.

H. Clothing and Bedding

1. Include at least one complete change of clothing and footwear per person.
2. Sturdy shoes or work boots*.
3. Rain gear*.
4. Blankets or sleeping bags*.

Assembling and Storing a Disaster Supply Kit continued

5. Hat and gloves*.
6. Thermal underwear*.
7. Sunglasses*.

I. Household Documents and Contact Numbers

1. Personal identification, cash (including change) or traveler's checks and a credit card.
2. Copies of important documents: birth certificates, marriage certificate, driver's license, social security cards, passport, wills, deeds, inventory of household goods, insurance papers, immunizations records, bank and credit card account numbers, stocks and bonds. Be sure to store these in a watertight container.
3. Emergency contact list and phone numbers.
4. Map of the area and phone numbers of places you could go.
5. An extra set of car keys and house keys.

J. Special Items - Remember family members with special needs.

1. For Baby*
   a) Formula.
   b) Diapers.
   c) Bottles.
   d) Powdered milk.
   e) Medications.
2. For Adults*
   a) Specific medications and health aids.

Assembling and Storing a Disaster Supply Kit continued

b) Insulin.

c) Prescription drugs (including oxygen).

d) Denture needs.

e) Contact lenses and supplies.

f) Extra eye glasses.

g) Entertainment—games and books.

h) A way to keep medicine cold if needed.

3) Important Family Documents —keep these records in a waterproof, portable container

a) Will, insurance policies, contracts, deeds, stocks and bonds.

b) Passports, social security cards, immunization records.

c) Bank account numbers.

d) Credit card account numbers and companies.

e) Inventory of valuable household goods.

f) Important telephone numbers.

V. Structural and Nonstructural Hazards and Mitigation

A. Shutting off or raising utilities is one way to reduce—or mitigate—a hazard before a disaster occurs. Shutting off utilities is one way to mitigate a hazard immediately after a disaster. See the three visual images at the end of this unit that explain how to shut off utilities.

B. The mitigation steps that one should take before and immediately after a disaster depend on the hazard and type of structure. This topic will deal with types of structures and the hazards related to each. Safety precautions, including hazard mitigation for structural and nonstructural hazards, will be covered next.

C. Hazards Related to Structure Type

1. You might not have an opportunity to select the type of structure that you are in when a disaster occurs. It is important to know what type of damage to expect from the main types of structures in the community.

2. Engineered buildings, such as most high-rise buildings, have performed well in most types of disasters. During earthquakes and high-wind events (e.g., tornadoes, hurricanes), older high-rise buildings, however, are more susceptible to damage from:

a) Broken glass.

b) Falling panels.

c) Collapsing walkways and stairways and non-functioning elevators.

3. Age, type of construction, and type of disaster are major factors in potential damage to homes and garages.

a) Based on local building codes and enforcement, some homes are not bolted to the foundation, making them subject to being shaken, blown, or floated off their foundations.

b) Older homes constructed of unreinforced brick are less stable than newer construction.

c) Following an event in which a structure has been damaged, there is a threat of additional damage, such as fire from ruptured gas lines.

Structural and Nonstructural Hazards continued

c) Mobility and communication systems can be impacted (e.g. ramps, communication systems that alert people using lights or sounds, alarm systems, elevators) leaving people stranded or uninformed.

5. Mobile homes are most susceptible to damage because they are easily displaced. When displacement occurs, structural integrity becomes questionable, and utility connections are easily damaged, increasing the risk of fire and electric shock.

6. Malls, sports arenas, airports, places of worship, and other places with long roof spans also may pose hazards in some types of disasters. For example:

a) Strip shopping centers pose a threat from collapse and broken glass.

b) Warehouse-type structures may also collapse.

D. Nonstructural Hazards. There is also risk in all types of structures from nonstructural hazards. Everyone has hazards in their homes or workplaces. Fixtures and items within a home, garage, or workplace can pose a hazard during or after a disaster. Some of the hazards include:

1. Gas line ruptures from water heaters or ranges displaced by shaking, water, or wind.

2. Damage from falling books, dishes, or other cabinet contents.

3. Risk of injury or electric shock from displaced appliances and office equipment.

4. Fire from faulty wiring, overloaded plugs, frayed electrical cords.

5. Electric based oxygen and respirator systems fail.

E. There are relatively simple measures that individuals can take to alleviate many home and workplace hazards. Consider the precautions against structural and nonstructural hazards covered in Unit One Chart Two found on the next page (page 19).

Unit One: Disaster Preparedness **Chart Two: Precautions Against Structural and Nonstructural Hazards**	
Type of Hazard	**Sample Precautions**
Structural	▪ Bolt older houses to the foundation. ▪ Strap propane tanks. ▪ Raise utilities (above the level of flood risk). ▪ Strap mobile homes to their concrete pads. ▪ Ask a professional to check the foundation, roof connectors, chimney, etc. ▪ Install working ramps (alternative to elevators)
Nonstructural	▪ Anchor furniture that is taller than waist high, such as bookshelves, hutches and grandfather clocks, to the wall. ▪ Secure appliances and office equipment in place with industrial-strength Velcro®. ▪ Secure cabinet doors with childproof fasteners. ▪ Locate and label shutoffs for gas, electricity, and water before disasters occur. After a disaster, shut off the utilities as needed to prevent fires and other risks. Store a shutoff wrench where it will be immediately available. ▪ Secure water heaters to the wall to safeguard against a ruptured gas line or loose electrical wires.

1. A good resource is the FEMA publication *Talking About Disasters.*

2. Additional information that is more in depth can be found on the website: www.fema.gov/rrr/talkdiz/.

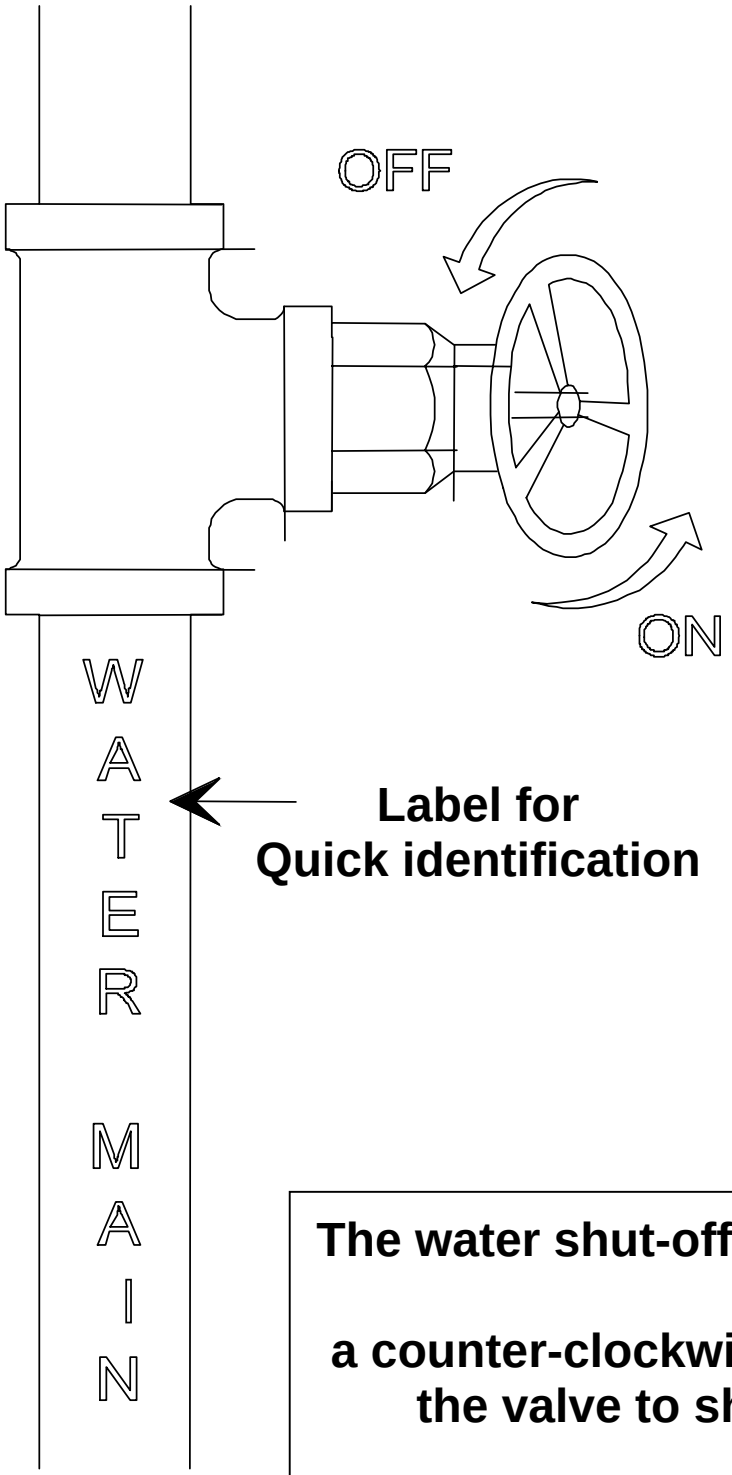
3. The following are suggestions to mitigate nonstructural hazards:

a) Home Fires: Make sure that burglar bars and locks on outside window entries are easy to open.

b) Landslides/Mudslides: Install flexible pipe fittings to avoid gas or water leaks. Flexible fittings are more resistant to breakage.

c) Wildfires: Avoid using wooden shakes and shingles for roofing. Clear all flammable vegetation at least 30 feet from the home. Remove vines from the walls of the home. Place propane tanks at least 30 feet from the home or other structures. Stack firewood at least 30 feet away and uphill from the home.

Water Shut-Off



Label for Quick identification

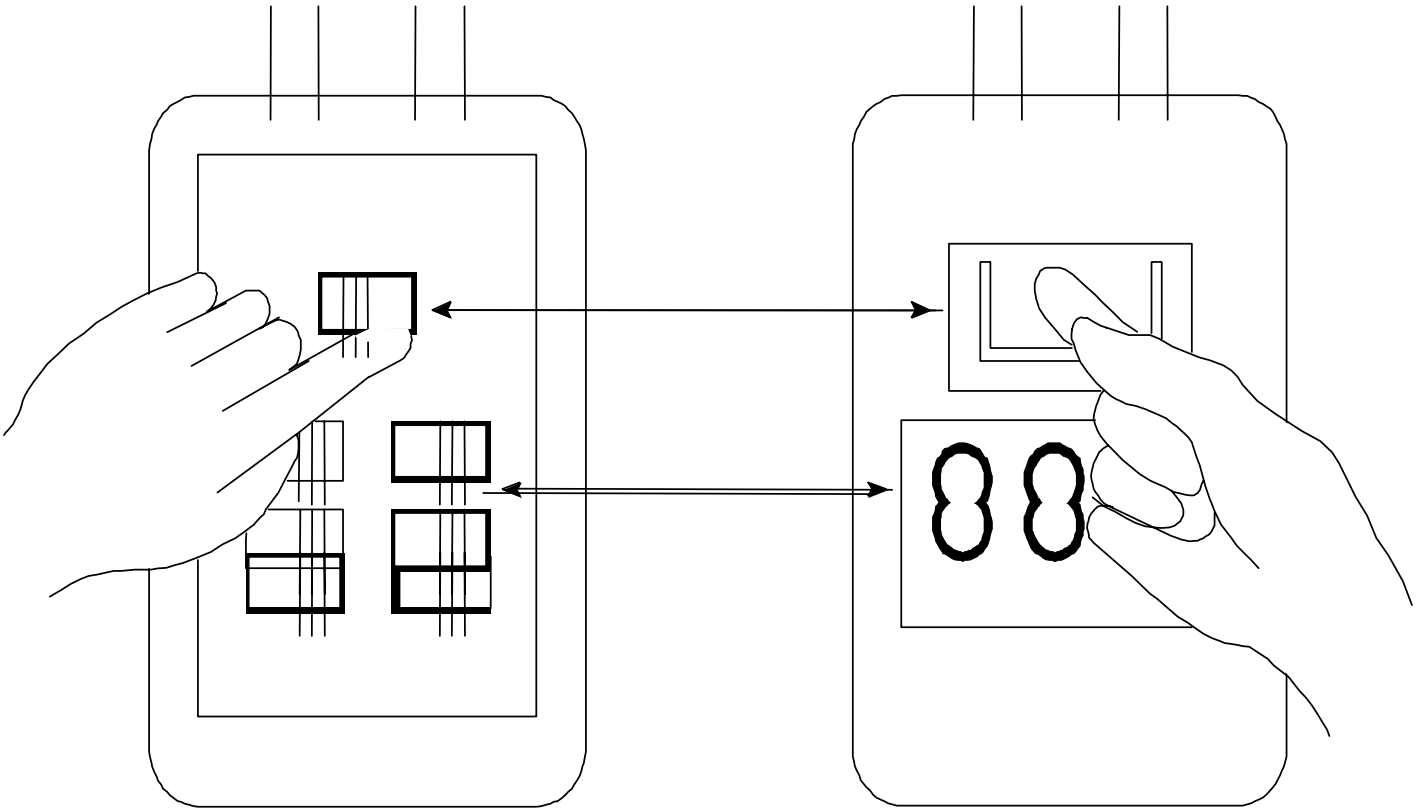
The water shut-off indicates:

a counter-clockwise turn of the valve to shut off

and clockwise turn to turn on.

Unit One: Disaster Preparedness
Visual Three: Electrical Shut-Off Procedure

Electrical Shut-Off



Circuit Breaker

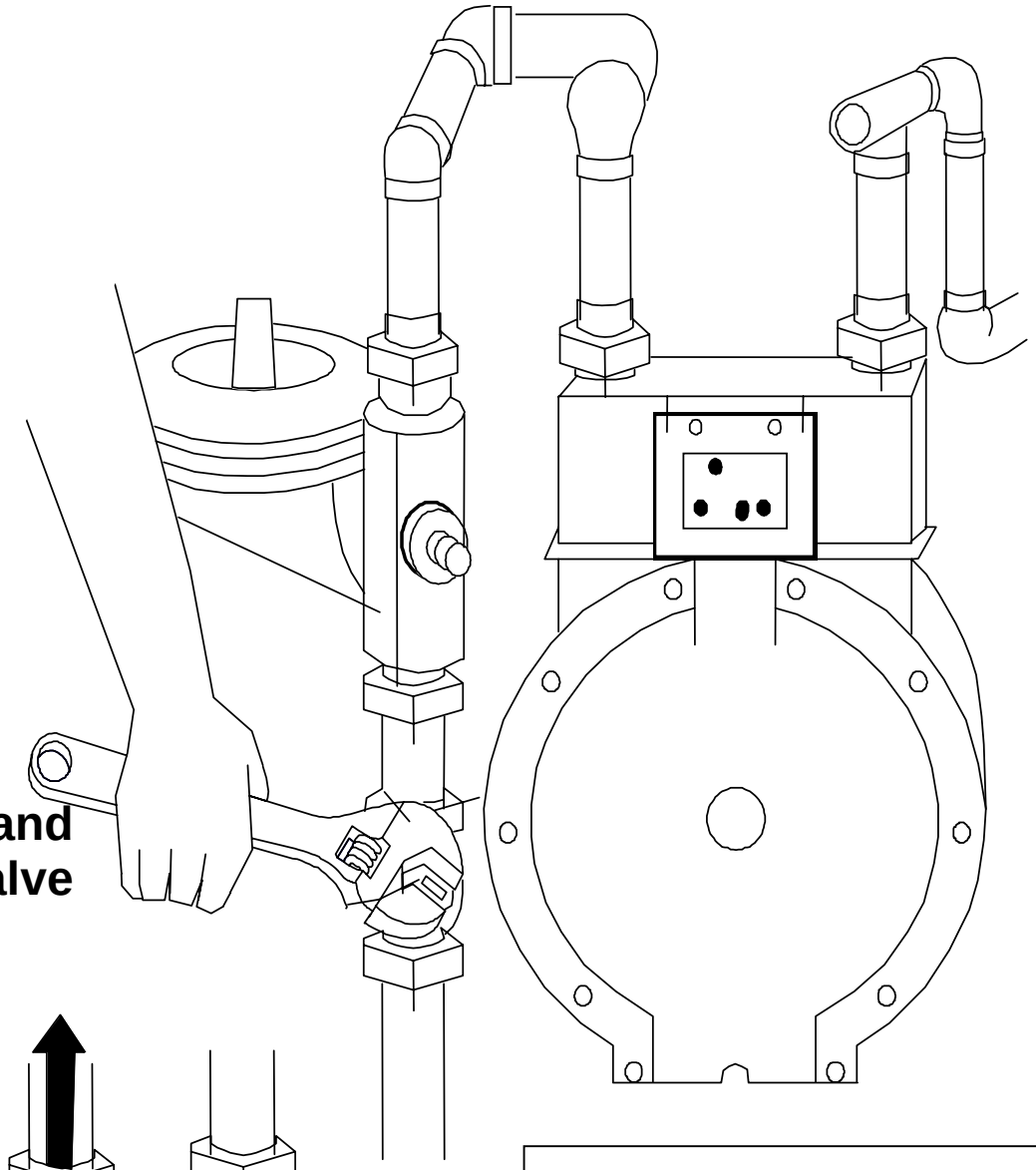
Pull-out cartridge fuses

The electrical shut-off procedure shows both a circuit box and a fuse box and shows two steps.

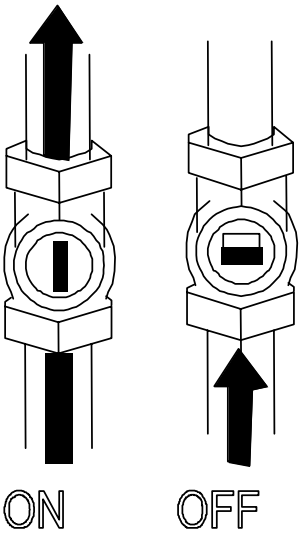
Step 1 is to shut off the main circuit (or main fuse switch).

Step 2 is to turn off all individual breakers (or unscrew fuses).

Gas Meter and Shut-Off Valve



Gas Meter and Shut-Off Valve



Have wrench stored in a specific location where it will be immediately available

NEXT . . .

1. If your CERT class continues on the same day, take your break and return to this classroom.

2. If your CERT class continues on another day (next week or next month) Your **Homework Assignment** is to read Unit Two: Understanding Emergency Management.

End of Unit One

Unit Two: Understanding Emergency Management

I. Unit Overview and Objectives

A. Unit Overview

1. The field of Emergency Management is usually not well-known by the general public until a disaster strikes. At that time community members must learn about the organizational patterns of disaster response and recovery agencies. It is a lot to learn under stressful circumstances; individuals in the Community Emergency Response Training will learn about this process before a disaster strikes.

2. This unit will summarize the functions, roles and responsibilities of local, State, Tribal and Federal professional emergency management personnel. It will also identify affiliated professional associations.

3. Response and recovery terms are outlined in the glossary at the end of this unit.

B. Objectives

1. By listening, participating and interacting in class activities, by the end of this unit participants should be able to accurately:

a. Understand the organizational roles and responsibilities of Local, State, Tribal and Federal Emergency Management organizations.

b. Recognize and use the most common terms that are a part of the emergency management profession

II. Introduction to Emergency Management[1]

A. Routine Emergency

Is a situation or an occurrence of a serious nature, developing suddenly and unexpectedly, and demanding immediate action. This is generally of short duration, for example, a house fire or car accident, or minor flooding caused by broken pipes.

B. Non-routine Emergencies

Are extraordinary circumstances that can exceed the local communities ability to respond or manage. Flooding might be an example of a non-routine emergency. Such emergencies may be limited in scope of impact and could be handled with State assistance.

C. Catastrophic Disaster.

The term implies an event or incident, which produces severe and widespread damages of such a magnitude as to result in the requirement for significant resources from outside the affected area to provide the necessary response. It results in large numbers of deaths and injuries; causes extensive damage or destruction of facilities that provide and sustain human needs; produces an overwhelming demand on state and local response resources and mechanisms; causes a severe long-term effect on general economic activity; and severely affects state, local, and private sector capabilities to begin and sustain response activities.

D. Presidentialy Declared Disasters

When the state's resources are exhausted, it can turn to the federal government for assistance. Only the President may declare a disaster based on information that indicates the event is massive in scope and needs long-term federal programs to help victims, businesses and public entities to recover. This federal-state relationship is spelled out in the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, which can be found at www.fema.gov/library/stafact.

[1] http://training.fema.gov/EMIWeb/downloads/is1_Unit1.pdf

Introduction to Emergency Management (Continued)

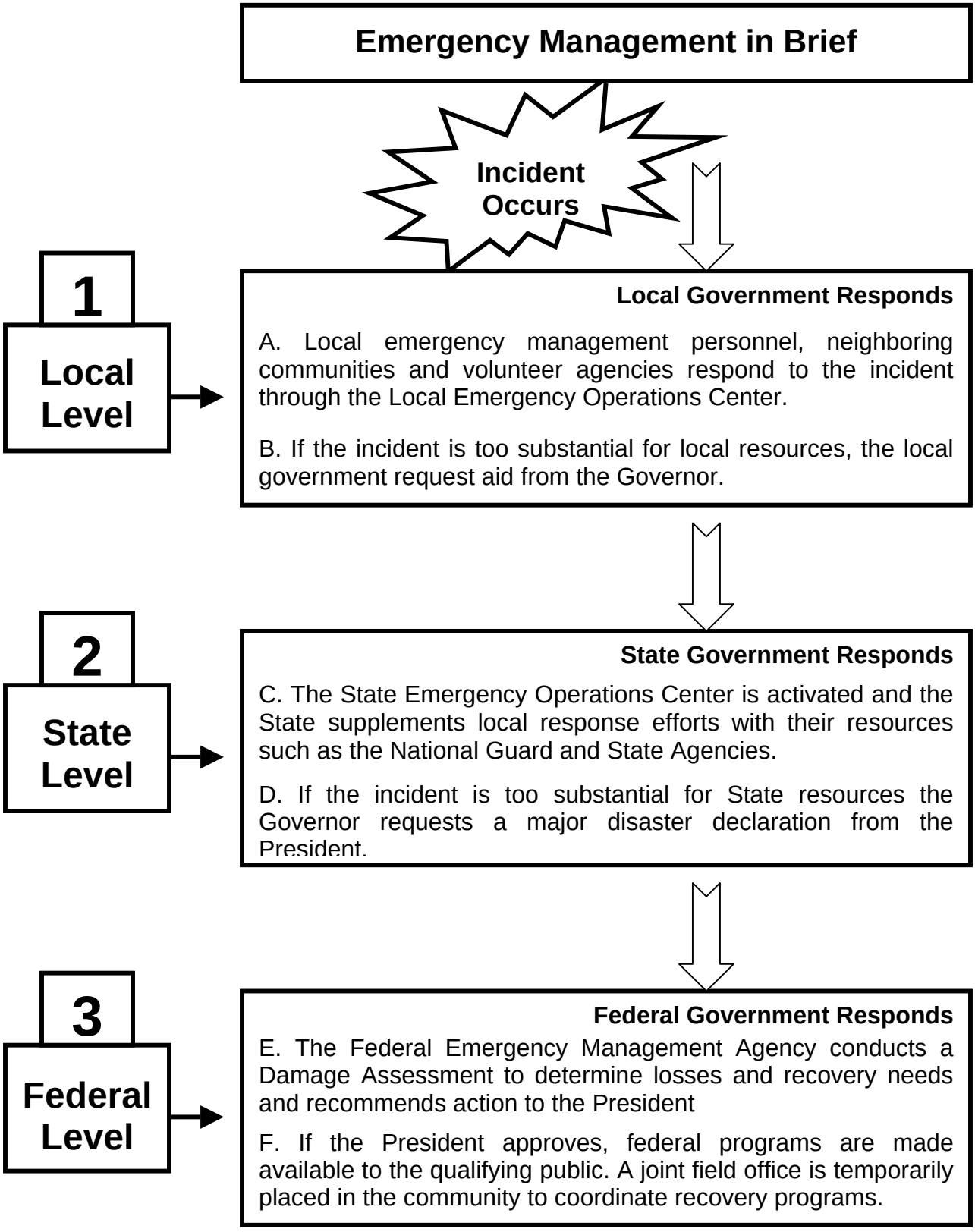
E. Response Phase

First response to an emergency is the individual or community. If the emergency is too large for their resources, local emergency management is called in. For example, if the stove catches fire and the personal fire extinguisher does not contain the emergency, the fire department is called. First response to a disaster is the job of local government's emergency services with help from nearby municipalities, then the state and volunteer agencies with support from some federal programs (such as Search and Rescue).

F. Recovery

Is the long-term phase of disaster. Recovery places the most severe financial strain on a local or state government. Damage to public facilities and infrastructure, often not insured, can overwhelm even a large city. Federal disaster response programs are mainly geared toward long-term recovery.

Unit Two: Understanding Emergency Management
Chart One: Emergency Management in Brief



III. Comprehensive Emergency Management

A. Common perception of Emergency Management
The average person probably thinks of emergency management in terms of a natural disaster such as a hurricane, tornado, flood, or ice storm. However, emergency management also embraces people-caused disasters such as hazardous materials spills, major transportation accidents, large fires, and terrorist events.

B. Regardless of the type of hazard, it is the responsibility of emergency management to help put in place mitigation, preparedness, response, and recovery programs to deal with these hazards. The concept used for handling all types of disasters and their consequences is called "comprehensive emergency management" (CEM).

C. CEM embraces three concepts involved in emergency management: an all hazards approach, emergency management as a partnership approach and the understanding that disasters have lifecycles. Each are explained below.

1. Concept 1: All Types of Hazards

The commonalties among all types of people caused and natural disasters suggest strongly that many of the same management strategies will apply to all such emergencies; so planning for one means planning for all.

2. Concept 2: Emergency Management Partnerships

The burden of disaster management and the resources to deal with it, require a close working partnership among all levels of government (federal, tribal, regional, state, county, and local) and the private sector (business and industry, voluntary organizations, and the general public). This makes sense, because disasters have no boundaries.

3. Concept 3: An Emergency Lifecycle

Disasters do not just appear one day and go away the next. Rather, they have what we might call an "occurrence cycle." This cycle entails a series of four management phases that include strategies to mitigate hazards and prepare for, respond to, and recover from emergencies and their effects.

Comprehensive Emergency Management (Continued)

Unit Two: Understanding Emergency Management
Visual One: The Emergency Lifecycle

The Emergency Lifecycle visual image shows that disasters do not just happen independently, they involved understanding of four concepts: mitigation, preparedness, response and recovery. Each element is a part of the natural cycle of disasters.

Comprehensive Emergency Management (Continued)

a. The four phases of comprehensive emergency management appear in a circular relationship to each other. Each phase links to the others. Activities in one phase may overlap those in the previous. The disaster phases have no beginning or end, so recognition of a threat can motivate mitigation efforts as well as an actual emergency can.

b. Mitigation includes activities that eliminate or reduce the chance of occurrence or the effects of a disaster. This might mean raising structures, purchasing flood insurance, or preparing a disaster supply kit.

c. The next phase of emergency management is preparedness. It is planning how to respond when an emergency or disaster occurs and working to marshal the resources to respond effectively. These activities help save lives and minimize damage by preparing people to respond appropriately when an emergency is imminent or hits.

d. Response is the third phase of emergency management and covers the period during and immediately following a disaster. During this phase, public officials provide emergency assistance to victims of the event and try to reduce the likelihood of further damage.

e. Recovery is the fourth and final phase of the emergency management cycle. It continues until all systems return to normal or near-normal operation. Short-term recovery restores vital life-support systems to minimum operating conditions. Long-term recovery may go on for months—even years—until the entire disaster area returns to its previous condition or undergoes improvement with new features that are less disaster-prone.

IV. Emergency Support Functions

1. When the President has declared a disaster, the Federal Emergency Management Agency (FEMA) has been tasked to coordinate planning , training, mitigation, response and recovery efforts. FEMA can utilize other government agencies as the disaster conditions mandate by calling upon their emergency support functions. The chart that follows indicates which agencies perform which tasks.

Unit Two: Understanding Emergency Management

Chart Two: Emergency Support Functions

Emergency Support Function		Agency	Activity
1	Transportation	Department of Transportation	Assists Federal Agencies, State, Tribal and local government entities, and voluntary organizations requiring transportation capacity to perform response missions.
2	Communication	National Communications System	Ensures the provision of Federal telecommunications support to response efforts
3	Public Works and Engineering	US Army Corps of Engineers, Department of Defense	Provides technical advice and evaluation; engineering services; contracting for construction management, inspection and emergency repair of water and wastewater treatment facilities.
4	Firefighting	Forest Service, Department of Agriculture	Detects and suppresses wiildland rural and urban fires resulting from or occurring coincidentally with a major disaster or emergency
5	Emergency Management	Federal Emergency Management Agency	Collects, analyzes, processes and disseminates information about a potential or actual disaster or emergency to facilitate the activities of the federal government in providing assistance to States.
6	Mass Care, Housing and Human Services	American Red Cross	Coordinates federal assistance in support of efforts to meet the mass care needs of victims, including sheltering feeding, emergency first aid, and bulk distribution of emergency relief supplies.
7	Resource Support	General Services Administration	Coordinates provision of equipment, materials, and personnel to support disaster operations.
8	Public Health and Medical Services	Department of Health and Human Services	Provides coordinated federal assistance to supplement resources in response to public health and medical care needs.
9	Urban Search and Rescue	Federal Emergency Management Agency	Deploys components of the National Urban Search and Rescue Response System to provide specialized lifesaving assistance to authorities, by locating, extricating and providing initial medical treatment o victims trapped in collapsed structures

Emergency Support Functions Continued			
10	Oil and Hazardous Materials Response	Environmental Protection Agency	Provides federal support response to actual or potential discharge of hazardous substances
11	Agriculture and Natural Resources	Department of Agriculture	Provides nutrition assistance. Control and eradicate animal and plant disease outbreaks. Assure food safety and food security. Protect natural and cultural resources and historic properties.
12	Energy	Department of Energy	Helps restore the nation's energy systems following a major disaster and coordinates with federal and state officials to establish priorities for repair of energy systems and to provide emergency fuel and power.
13	Public Safety and Security	Department of Homeland Security Department of Justice	Force and critical infrastructure protection. Security planning and technical assistance. Technology support. Public Safety.
14	Long-term Community Recovery and Mitigation	Department of Agriculture Department of Commerce FEMA Dept. of Housing and Urban Development Department of Treasury Small Business Administration	Provides support framework for helping communities recover from the long-term consequences of an Incident of national Significance. Ensures that the process of rebuilding communities in initiated at the beginning of a response. Helps communities rebuild in a safer, stronger and smarter way. Incorporates mitigation efforts to reduce or eliminate risk from future incidents.
15	External Affairs	Department of Homeland Security Federal Emergency Management Agency	Implements the Joint Information System concept. Establishes mechanisms for delivery of accurate, coordinated and timely information to the pubic and other key audiences. Provides the resource support and mechanisms to implement the National Response Plan's "Incident Communications Emergency Policy and Procedures" describe in the National Response Plan Public Affairs Support Annex.

V. Glossary

City Offices of Emergency Services

Offices that serve as the primary point of contact within city government for the coordination of emergency management activities including planning, preparedness, response, recovery and mitigation.

County Offices of Emergency Services

Offices that serve as the primary point of contact within county government for the coordination of emergency management activities including planning, preparedness, response, recovery and mitigation.

Disaster Relief/Recovery Organizations

Organizations that have a formal role in coordinating the provision of disaster relief and/or recovery services following a major disaster or large-scale emergency that disrupts the norm al functioning of a community. Included are coalitions of community-base d organizations in a defined geographic area whose members are prepared to act in concert to respond to the emergency needs of the community during the relief and recovery phases of a disaster and non-affiliated organizations with a designated role. Some collaboratives are local VOADs, which are organized through state-level VOAD chapters, which are affiliates of the national organization, National Voluntary Organizations Active in Disaster (NVOAD), a formal coalition of national voluntary organizations with a common interest in providing disaster relief. Other coalitions are “interfaiths” which gather financial and other resources from the faith community and distribute them to people in need, generally after American R ed Cross and other immediate relief organizations have completed their work. NOTE: “Disaster Relief” is a category of ser vices utilized by community agencies involved in disaster work. Government organizations do not recognize disaster relief as a formal part of the disaster cycle. Most of the services classified as disaster relief are considered by government to be part of disaster recovery and a few (e.g., disaster welfare inquiries) are categorized as disaster response.

Glossary (Continued)

Disaster Mitigation

Programs that provide services which enable individuals and organizations to make physical preparations prior to a disaster or large-scale emergency which will prevent or reduce loss of life, personal injury and destruction of or damage to property when an incident actually occurs. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening or lessen the damaging effects of unavoidable emergencies

Disaster Service s for Animals

Programs that provide emergency services for animals who have been threatened or affected by a major disaster o r large-scale emergency that disrupts the norm al functioning of a community.

Disaster Warnings

Programs that issue alerts, advisories and warnings to inform the public of an impending event such as a ma or fire, flood , hurricane or tornado which has the potential to cause loss o f life, person al injury, property destruction or dam age and wide-sp read community disruption . Disaster warnings m ay include safety instructions for people who are likely to be affected by the event, may communicate information about measures, such as curfews, that the authorities have taken to minimize the effects of the incident, and may provide crucial information about the status of the physical environment (e.g., roads and bridges that are impassable) following the event.

Emergency Animal Shelters

Program s that open evacuation center s where people c an take their pets to escape the prospect a major disaster or large-scale emergency that threatens to disrupt the normal functioning of a community; or which provide temporary shelter for lost or displaced animals following a disaster.

Emergency Operations Centers

Designated sites established by city, county and/or operational area authorities to coordinate disaster response, relief and /or recovery efforts.

Glossary (Continued)

Emergency plan

A brief, clear, and concise description of the overall emergency organization, designation of responsibilities, and procedures, including notifications, involved in coping with any or all aspects of a potential credible emergency.

Emergency preparedness

The training of personnel, acquisition and maintenance of resources, and exercising of the plans, procedures, personnel, and resources essential for emergency response.

Emergency Operations Center (EOC)

A facility from which management and support personnel carry out coordinated emergency response activities. It may be a dedicated facility or office, conference room, or other pre-designated location having appropriate communications and informational materials to carry out the assigned emergency response mission and located, where possible, in a secure and protected location.

Exercise

A comprehensive performance test of the integrated capability of most aspects in the emergency management program associated with the facility. Exercises test the adequacy and effectiveness of organizational command and control; implementation procedures; notifications and communications networks; emergency equipment; response organization personnel performance; and the overall emergency response program performance.

Federal Disaster Field Offices

Temporary federal operations facilities established in or near a designated disaster area to support federal and state response and recovery operations. The DFO is staffed by the federal coordinating officer who is responsible for coordinating federal disaster response activities during a Presidentially declared disaster or emergency; the federal interagency emergency response team and, where possible, the state coordinating officer (the representative of the Governor of a state or territory who coordinates state disaster response and recovery activities with those of the federal government) and his/her support staff. Representatives for each activated Emergency Support Function are present in the DFO.

Glossary (Continued)

Hazardous material (HAZMAT)
Any solid, liquid, or gaseous material that is toxic, flammable, radioactive, corrosive, chemically reactive, or unstable upon prolonged storage in quantities that could pose a threat to life, property, or the

Hazard Mitigation
Any cost-effective measure that will reduce the potential for damage to a facility from a disaster event.

Incident Command System (ICS)
The combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure with responsibility for the management of assigned resources to effectively accomplish stated objectives pertaining to an incident.

Incident Commander
The individual responsible for the management of all operations at a particular hazardous materials

Joint Information Center (JIC)
A centralized facility where organizations responding to an emergency coordinate the release of accurate and timely information to the public and the media and provide a central source for all instructions. A JIC is operated cooperatively by all responding levels of federal, state, and local governments and organizations, and the involved facility

Local Emergency Planning Committee (LEPC):
A committee appointed by the State Emergency Response Commission (SERC), as required by Title III of Superfund Amendments and Reauthorization Act (SARA), to formulate a comprehensive emergency plan for its district

Local government
Any county, city, village, town, district, or political subdivision of any state, Indian tribe or authorized tribal organization, or Alaska Native village or organization, including any rural community or unincorporated town or village or any other public entity.

Glossary (Continued)

Sheltering

An in-place, immediate protective action which calls for people to go indoors, close all doors and windows, turn off all sources of outside air, listen to radio or television for emergency information, and remain indoors until official notification that it is safe to go out.

Simulation

A fabrication of disaster or emergency events. Simulation applies only to the overall emergency or event being staged. Emergency response actions are actually performed, not simulated

Special Needs Shelter Care

Programs that provide shelter for individuals such as medically dependent people and unaccompanied minors who require a level of personal support or attention not available in most mass shelter care facilities.

Tabletop training activity

An emergency preparedness training activity, which takes place in a classroom environment or emergency response facility, during which emergency response personnel are presented with simulated events and the participants "talk-through" the response actions

Red Cross Disaster Service Centers

Centers opened by trained Red Cross volunteers to assist people who have sustained dam age in a major disaster or large-scale emergency that disrupts the normal functioning of a community. Disaster victims meet with caseworkers who assess their needs and supply clothing, rent assistance, beds and bedding, necessary furniture, cooking and eating utensils, occupational supplies, prescription medication, small appliances and other necessities

Urban Search and Rescue

Programs that mount emergency search and rescue operations that locate, extricate, and provide medical treatment for victims of structural collapse that occurs during a disaster. Specialized equipment includes concrete and steel cutting tools, breaking devices, portable generators, air compressors, power saws, drills, air bags, floodlights, ropes and other technical rescue items. Also available, as needed, are medical supplies, hazardous materials

and radiation monitors, protective clothing, victim locating dev ices and search cameras.

Understanding Emergency Management

NEXT . . .

1. If your CERT class continues on the same day, take your break and return to this classroom.

2. If your CERT class continues on another day (next week or next month) your **Homework Assignment** is to

a. Read and familiarize yourself with Unit 3: Fire Safety in the Participant Manual.

b. Bring a pair of leather gloves and safety goggles to use in the fire suppression unit and to serve as a starting point for your disaster supply kit.

c. Begin food and water storage for at least 3 days for yourself and your families.

d. Establish an out-of-state contact.

e. Locate the utility shutoffs in your home.

f. Wear appropriate clothes to the next session (no shorts or open-toed shoes), because you will practice putting out a small fire with an extinguisher.

End of Unit Two

UNIT THREE: FIRE SAFETY

I. Unit overview and objectives

A. Unit Overview

1. During and immediately following a severe emergency, the first priorities of professional fire services are life safety and extinguishing *major fires*. They may be hampered by impassable roads, inadequate water supply, weather conditions, burning material, and inadequate resources.
CERT plays an important role in fire safety by training people to:

a. Extinguishing small fires before they become major fires. This unit will provide training on how to use an extinguisher to put out small fires and how to recognize when a fire is too big to handle.

b. Preventing additional fires by removing fuel sources. This unit will also describe how to ensure that a fire, once extinguished, is completely extinguished.

c. Shutting off utilities, when necessary and safe to do so.

d. Assisting with evacuations where necessary. When a fire is beyond the ability a person to extinguish, CERT individuals need to protect life by evacuating the area, when necessary, and establishing a safety perimeter.

Unit Overview (Continued)

2. People with CERT training help in fire-related emergencies when professional responders (paid and volunteer) are delayed. When responding, individuals should keep in mind the following CERT standards:

a. Rescuer safety is always the number one priority.

b. Work with another person.

c. Wear safety equipment (gloves, helmet, goggles, mask, and boots).

d. **The CERT goal is to do the greatest good for the greatest number of people**.

3. The unit will provide you with the knowledge and skills that you will need to reduce or eliminate fire hazards and extinguish small fires. The areas that you will learn about include:

a. How fires start and what keeps them burning.

b. Identification of fire hazards in the home, neighborhood, and workplace.

c. How to conduct a fire assessment, or size-up.

d. The main firefighting resources available through CERT and how to use them.

e. Procedures for safe firefighting.

f. Hazardous materials identification.

B. Unit Objectives

1. By listening, participating and interacting in class activities, by the end of this unit participants should be able to accurately:

a. Explain the role that CERT plays in fire safety.

b. Identify and reduce potential fire risks in the home and workplace.

c. Conduct a basic size-up for a fire emergency.

Unit Objectives (Continued)

d. Understand minimum safety precautions including:

- Safety equipment
- Utility control
- Buddy system
- Back-up teams

e. Identify locations of hazardous materials in the community and the home, and reduce the risk from hazardous materials in the home.

f. Extinguish small fires using a fire extinguisher.

II. Fire Chemistry

A. In this section material will explain basic fire chemistry, and then cover how fire occurs, classes of fire and the correct means to extinguish each type of fire.

B. The Fire Triangle represents the three elements fire requires to exist. Fuel, oxygen and heat create a chemical reaction which causes fire.

1. Heat: Heat is required to elevate the temperature of a material to its ignition point.

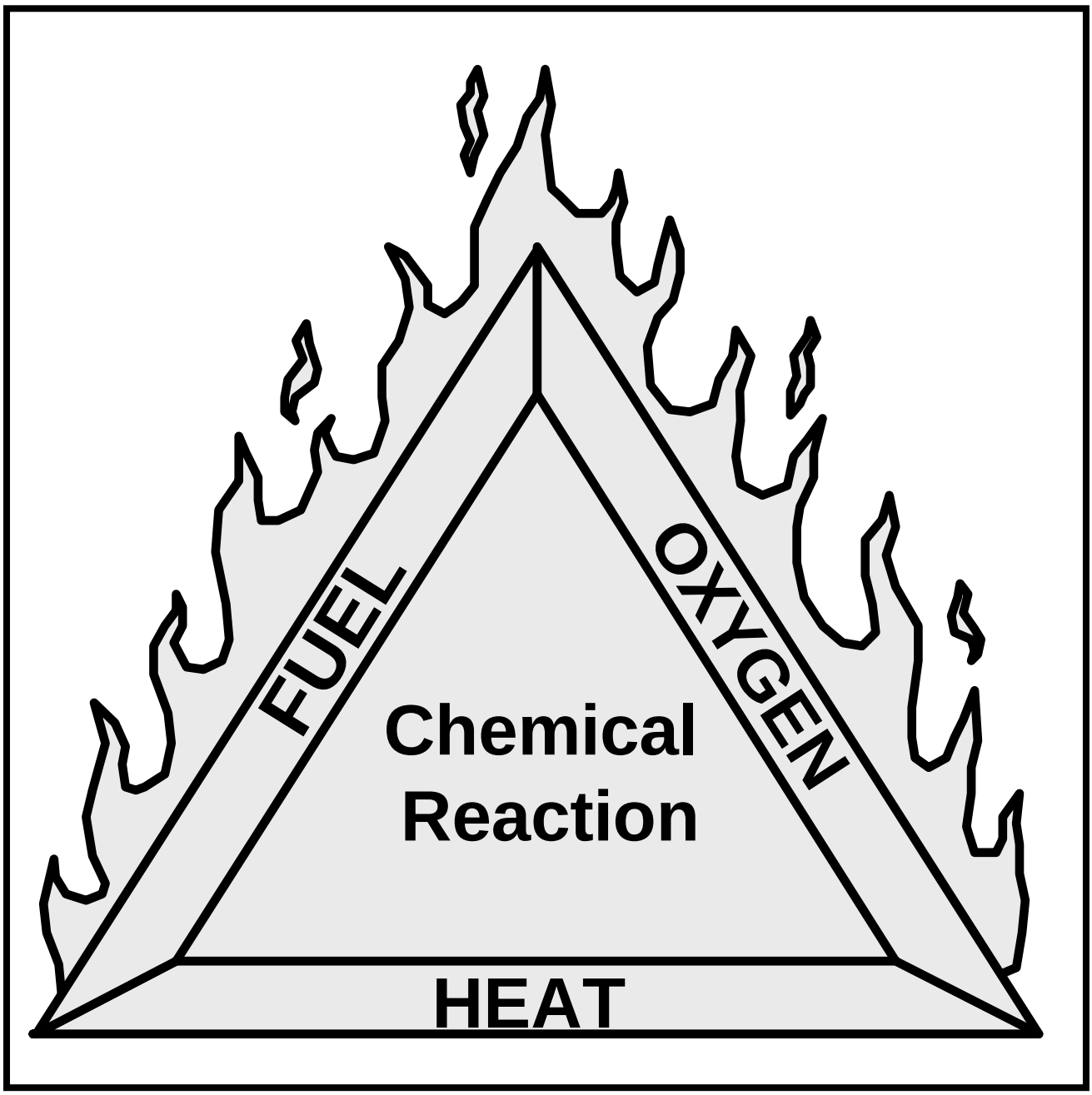
2. Fuel: The fuel for a fire may be a solid, liquid, or gas. The type and quantity of the fuel will determine which method should be used to extinguish the fire.

3. Oxygen: Most fires will burn vigorously in any atmosphere of at least 20 percent oxygen. Without oxygen, most fuels could be heated until entirely vaporized, yet would not burn.

C. Working together, these three elements, called the fire triangle, create a chemical exothermic reaction, which is fire. If any of these elements is missing or if any is taken away, fire will not occur or will extinguish.

Unit Three: Fire Safety
Visual One: The Fire Triangle

The Fire Triangle
Fuel, oxygen and heat create a chemical reaction which causes fire.



Fire chemistry (Continued)

A. To aid in extinguishing fires, fires are categorized into classes based on the type of fuel that is burning:

1. Class A Fires are from ordinary combustibles such as paper, cloth, wood, rubber and many plastics.

2. Class B Fires are from flammable liquids (e.g., oils, gasoline) and combustible liquids (e.g., charcoal lighter fluid, kerosene). These fuels burn only at the surface because oxygen cannot penetrate the depth of the fluid. Only the vapor burns when ignited.

3. Class C Fires are from energized electrical equipment (e.g., wiring, motors). When the electricity is turned off the fire becomes a Class A fire.

4. Class D Fires are from combustible metals (e.g., aluminum, magnesium, titanium).

B. It is extremely important to identify the type of fuel to select the correct method and agent for extinguishing the fire.

III. Reducing Fire Hazards in the Home and Workplace

A. Part of CERT planning is to identify hazards in the area that would affect residents in an emergency. This information is important to professional responders when they arrive on scene.

B. Each of us has some type of fire hazard in our home or workplace. Most of these hazards fall into three categories:

- Electrical hazards
- Natural gas hazards
- Flammable or combustible liquids

C. Homes and workplaces can and do have other hazards, including incompatible materials stored in close proximity to each other.

D. Simple fire prevention measures will go far in reducing the likelihood of fires. First locate potential sources of ignition then do what you can to reduce or eliminate the hazards.

Reducing Fire Hazards in the Home and Workplace (Continued)

E. Electrical Hazards Reduction - Simple ways that common electrical hazards can be reduced or eliminated include:

1. Avoid the "electrical octopus." Eliminate tangles of electrical cords. Don't overload electrical outlets. Don't plug power strips into other power strips.

2. Don't run electrical cords under carpets.

3. Replace broken or frayed cords immediately.

4. Maintain electrical appliances properly. Repair or replace malfunctioning appliances.

F. Electrical Hazard Emergencies- sometime occur despite our best efforts. In the event of an electrical emergency:

1. Know where the power shutoffs for electrical appliances are.

2. Know where the power shutoff for circuit breakers or fuses is and how to shut off the power.

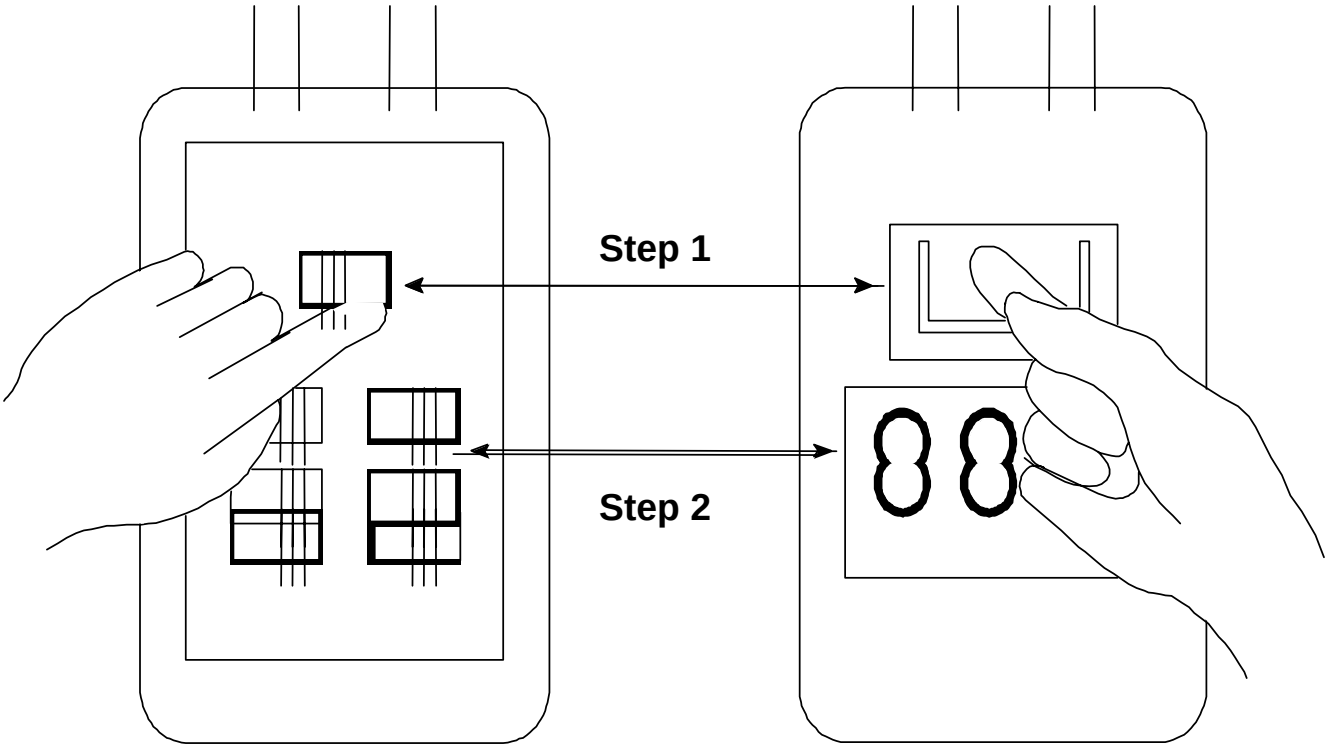
3. Unscrew individual fuses or switch off smaller breakers first, then pull the main switch or breaker.

4. When turning the power back on, turn on the main switch or breaker first, then screw in the fuses or switch on the smaller breakers.

5. You should **NEVER** enter a flooded basement to shut off the electrical supply, because water conducts electricity.

Unit Three: Fire Safety
Visual Two: Electrical Shut Off Procedure

Electrical Shut-Off



Circuit Breaker

Pull-out cartridge fuses

The electrical shut-off procedure shows both a circuit box and a fuse box and shows two steps.

Step 1 is to shut off the main circuit (or main fuse switch).

Step 2 is to turn off all individual breakers (or unscrew fuses).

Reducing Fire Hazards in the Home and Workplace (Continued)

G. Natural Gas Hazards - can be present in two types.

1. Asphyxiant that robs the body of oxygen.

2. Explosive that can easily ignite.

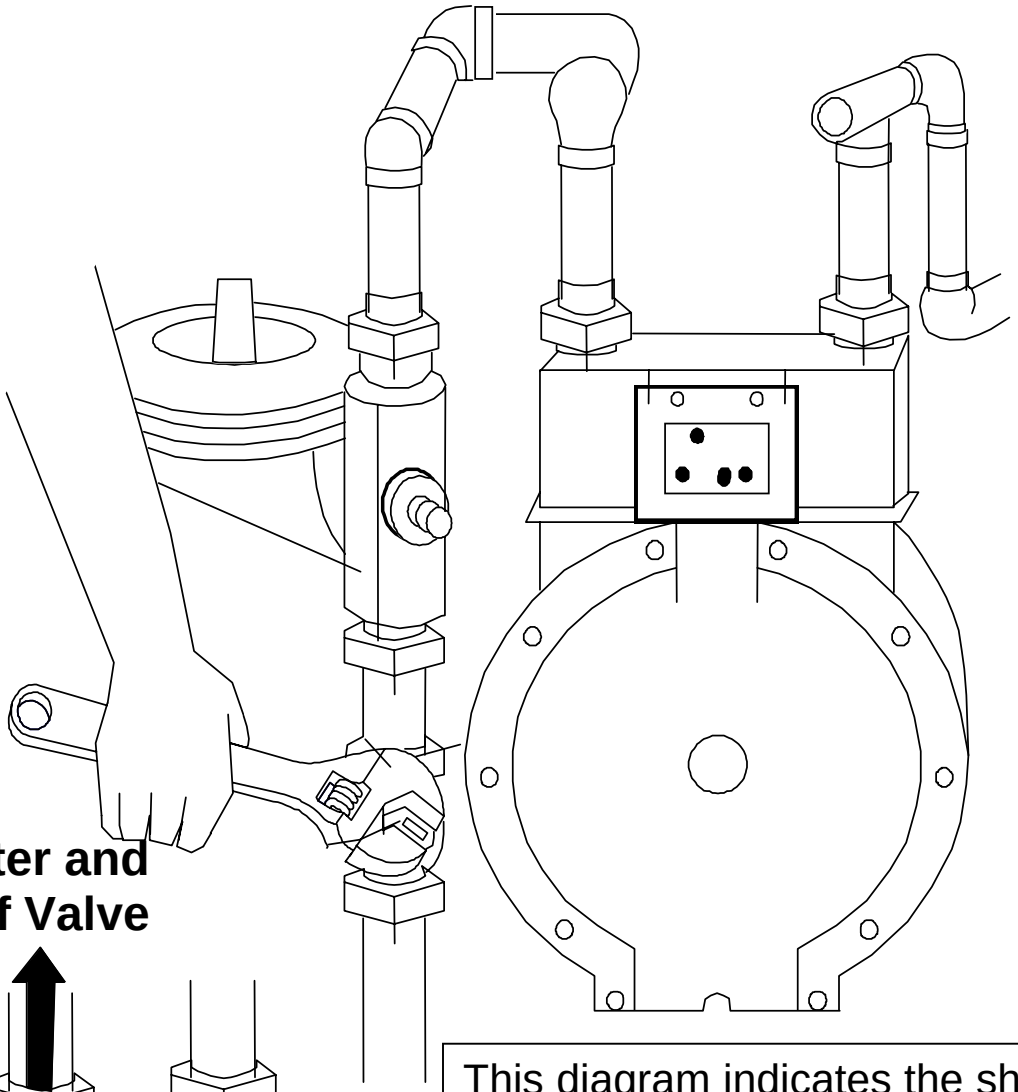
H. To reduce natural gas hazards:

1. Install a natural gas detector near the furnace and hot water tank.

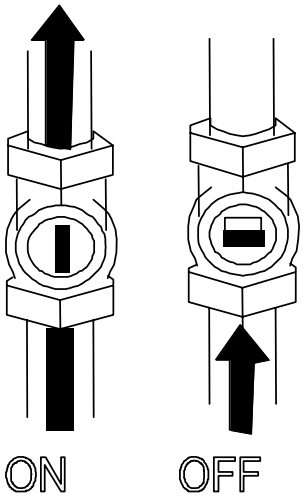
2. Test the detector monthly to ensure that it works.

I. Locate and label the gas shutoff valve(s). There may be multiple valves inside a home in addition to the main shutoff. Know how to shut off the gas and have the proper tool for shutting off the gas handy.

Gas Meter and Shut-Off Valve



Gas Meter and Shut-Off Valve



This diagram indicates the shut-off valve location on a gas pipe where it comes out of the ground.

To **turn off** the valve use a wrench to turn the valve counter-clockwise one-quarter turn.

Reducing Fire Hazards in Home and Workplace (Continued)

J. In a disaster, if you smell gas, leave the building immediately. If there is a fire, turn off the gas from outside the building. After service is turned off, however, it can be restored only by a trained technician.

1. **Never** enter the basement of a structure that is on fire to turn off any utility.

K. Flammable Liquid Hazards can be reduced by:

1. Read labels to identify flammable products and store them properly using the **L.I.E.S.** method (also covered in Unit 1 Appendixes).

- **Limit** the amount of hazardous materials in storage.
- **Isolate** products in approved containers, store them inside enclosed cabinets and protect them from sources of ignition.
- **Eliminate** products that are no longer necessary by disposing of them properly.
- **Separate** incompatible materials (e.g. chlorine products and ammonia).

2. You should extinguish a flammable liquid using a portable fire extinguisher rated for that class of fire. Ratings for portable extinguishers will be addressed later in this unit.

IV. CERT Size-up

A. CERT size-up is a continual data-gathering process that will dictate whether to attempt fire suppression and planning for extinguishing the fire. CERT size-up answers the questions:

1. Can my buddy and I fight the fire safely?
2. Do my buddy and I have the right equipment?
3. Are there other hazards?
4. Is the building structurally damaged?
5. Can my buddy and I escape?

CERT Size-up (Continued)

B. Size-up is a continual nine-step process that enables first responders to make decisions and respond appropriately in the areas of greatest need. The nine steps in size-up are:

1. Gather facts. What has happened? How many people are involved (if you know)? What is the current situation?

2. Assess and communicate the damage. Take a lap around the building. Try to determine what has happened, what is happening now, and how bad things can really get.

3. Consider probabilities. What is likely to happen? What could happen through cascading events?

4. Assess your own situation. Are you in immediate danger? Have you been trained to handle the situation? Do you have the equipment that you need?

5. Establish priorities. Are lives at risk? Can you help? Remember, life safety is the first priority!

6. Make decisions. Base your decisions on the answers to Steps 1 through 3 and in accordance with the priorities that you established.

7. Develop plans of action. Develop a plan that will help you accomplish your priorities. Simple plans may be verbal, but more complex plans should always be written.

8. Take action. Execute your plan, documenting deviations and status changes so that you can report the situation accurately to first responders.

9. Evaluate progress. At intervals, evaluate your progress in accomplishing the objectives in the plan of action to determine what is working and what changes you may have to make to stabilize the situation.

CERT Size-up continued.

Unit Three: Chart One
CERT Fire Size-up Checklist (page 1 of 3)

Step 1: Gather Facts	Check Box
A. **Time**	
1. Does the time of day or week impact fire suppression efforts?	Yes / No
2. How?	
B. **Weather**	
1. Will weather conditions impact your safety? If yes, how will your safety be affected?	Yes / No
2. Will weather conditions affect the fire situation? If yes, how will the fire situation be affected?	Yes / No
C. **Type of Construction**	
1. What type(s) of structure(s) are involved?	
2. What type(s) of construction are involved?	
D. **Occupancy**	
1. Are the structures occupied? If yes, how many people are likely to be affected?	Yes / No
2. Are there special considerations (e.g. children, elderly)?	
E. **Hazards**	
1. Are hazardous materials involved?	Yes / No
2. Are any other types of hazards likely to be involved? If yes, what other hazards?	Yes / No

CERT Size-up continued.

Unit Three: Chart One
CERT Fire Size-up Checklist (page 2 of 3)

Step 2: Assess and Communicate the Damage

A. Go around the building. Is the damage beyond your capability to respond?		Yes	No
B. Are normal communication channels functioning?		Yes	No

Step 3: Consider Probabilities

A. Life Hazards - Are there potentially life-threatening hazards? If yes, what are the hazards?		Yes	No
B. Path of Fire - Does the fire's path jeopardize other areas? If yes, what other areas may be jeopardized?		Yes	No
C. Additional Damage - Is there a high potential for more disaster activity that will impact personal safety? If yes, what are the known risks?		Yes	No

Step 4: Assess Your Own Situation

A. What resources are available with which you can suppress the fire?

B. What equipment is available?

CERT Size-up continued.

Unit Three: Chart One
CERT Fire Size-up Checklist (page 3 of 3)

Step 5: Establish Priorities

	Yes	No	

A. Can fire suppression be safely attempted by CERT members?
If no, do not attempt suppression.

B. Are there other, more pressing needs at the moment?
If yes, list.

Step 6: Make Decisions

A. Where will deployment of available resources do the most good while maintaining an adequate margin of safety?

Step 7: Develop a Plan of Action

A. Determine how personnel and other resources should be deployed.

Step 8: Take Action

A. Put the plans into effect.

Step 9: Evaluate Progress

A. Continually size up the situation to identify changes in the:
- Scope of the problem.
- Safety risks.
- Resource availability.
- Adjust strategies as required.

V. Firefighting Resources

A. The most common firefighting resources are:

1. Portable fire extinguishers - are invaluable for putting out small fires. A well-prepared home or workplace will have at least two portable fire extinguishers.

2. Interior wet standpipes - are usually found in commercial and apartment buildings and consist of 100 feet of 1½-inch jacketed hose with a 3/8-inch nozzle tip. They deliver up to 125 gallons of water per minute.

Always work in three-person teams when using an interior wet standpipe. One person handles the hose, another bleeds the air from the line and the third person controls the water pressure.

B. There are also other firefighting resources available that are less common:

1. In interior spaces, it is possible to confine a fire and restrict the spread of smoke and heat by closing doors to rooms and hallways.

2. Other creative resources may also be available:

a. Swimming pool or spa water and buckets

b. Sand or dirt and shovels

c. A garden hose

3. The type of fuel that is burning will determine which resources to select to fight a fire.

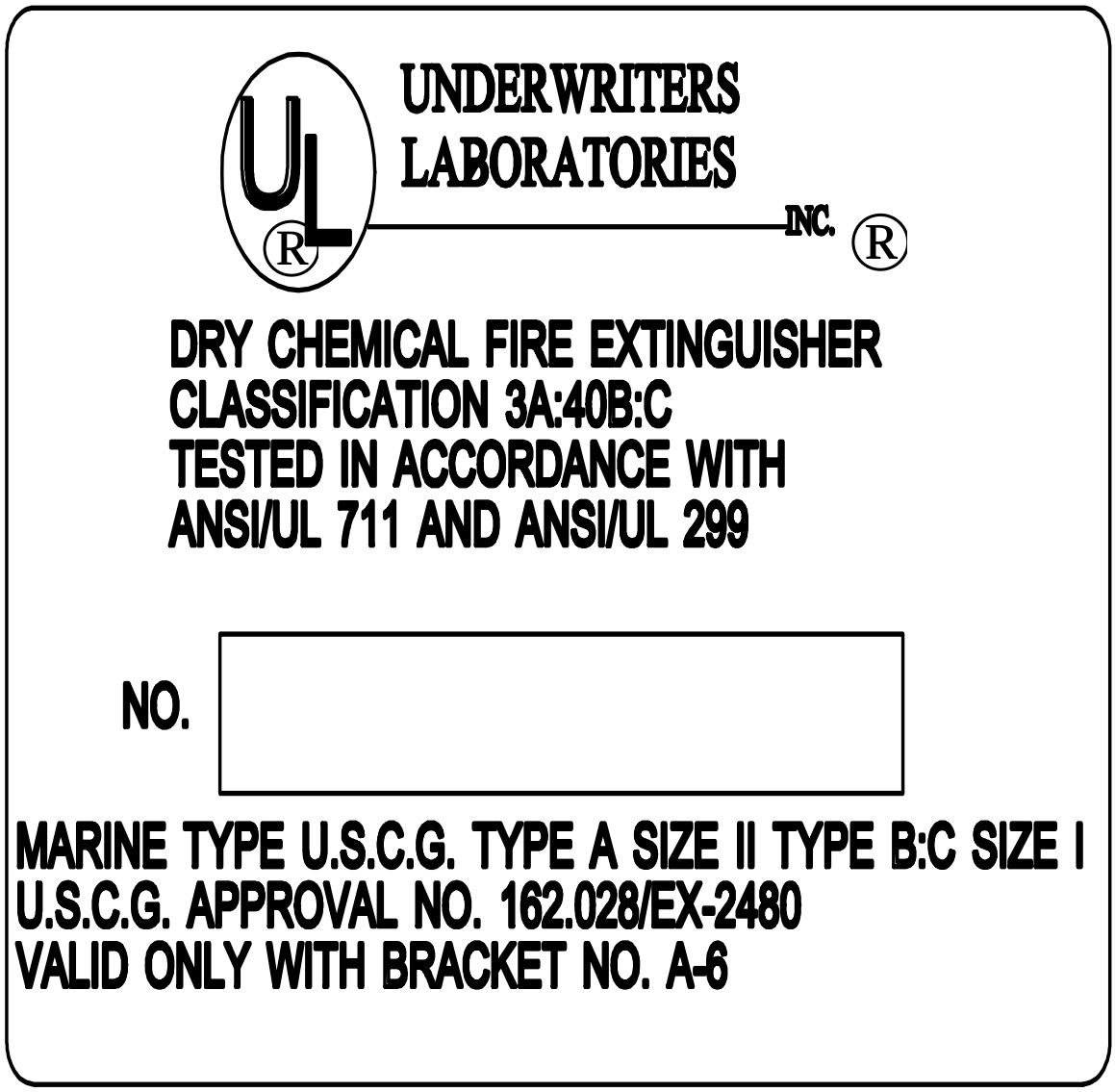
C. Extinguisher Rating and Labeling

1. Portable fire extinguishers must be rated and approved by the State Fire Marshal and Underwriters Laboratories. They are rated according to their effectiveness on the different classes of fire. Their strength and capability must also be labeled by the manufacturer.

2. The label contains vital information about the type(s) of fire for which the extinguisher is appropriate.

Firefighting Resources continued

Unit Three: Fire Safety
Visual Four: Manufacturer's Label for a fire extinguisher



Sample Manufacturer's Label for a fire extinguisher, showing the Underwriters Laboratories Symbol at the top, the type and classification of fire extinguisher, testing procedures used, and serial number. At the bottom of the label is marine information, including the U.S. Coast Guard approval number.

Firefighting Resources continued

D. Types of Fire Extinguishers - There are four types of extinguishers:

1. Water
2. Dry chemical
3. Carbon dioxide
4. Specialized fire extinguishers

E. Common characteristics of water extinguishers include:

1. Capacity. Standard size is 2½ gallons.
2. Range. Standard range is 30-40 feet.
3. Pressure. Standard pressure is 110 pounds per square inch (psi). Use extreme caution when using a water extinguisher to ensure that the water, which is under pressure, does not scatter lightweight materials and spread the fire.

F. Dry chemical extinguishers are also common.

1. Dry chemical extinguishers have a sodium bicarbonate base and are effective on Class B and C fires.

2. Multipurpose dry chemical extinguishers have a monoammonium phosphate base and are effective for Class A, B, and C fires.

3. Common characteristics of dry chemical extinguishers include:

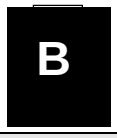
a. Capacity. Approximately 10-20 seconds discharge time.

b. Range. Standard range is 8-12 feet.

c. Pressure. Standard range is 175-250 psi.

4. While still in use, carbon dioxide and other specialized extinguishers are becoming less common.

Unit Three: Chart Two
Fire Types, Extinguishing Agents and Methods

Fire Type	Extinguishing	
	Agent	**Method**
Ordinary Solid Materials  	Water	Removes heat
	Foam	Removes air and heat
	Dry chemical	Breaks chain reaction
Flammable Liquids  	Foam CO_2	Removes air
	Dry chemical	Breaks chain reaction
Electrical Equipment  	CO_2	Removes air
	Dry chemical	Breaks chain reaction
Combustible Metals  	Special agents	Usually remove air

Firefighting Resources continued

G. Deciding to Use a Fire Extinguisher - There are a series of questions that you should ask yourself before attempting to fight a fire with a fire extinguisher.

1. If you answer "NO" to any of these questions, you should:

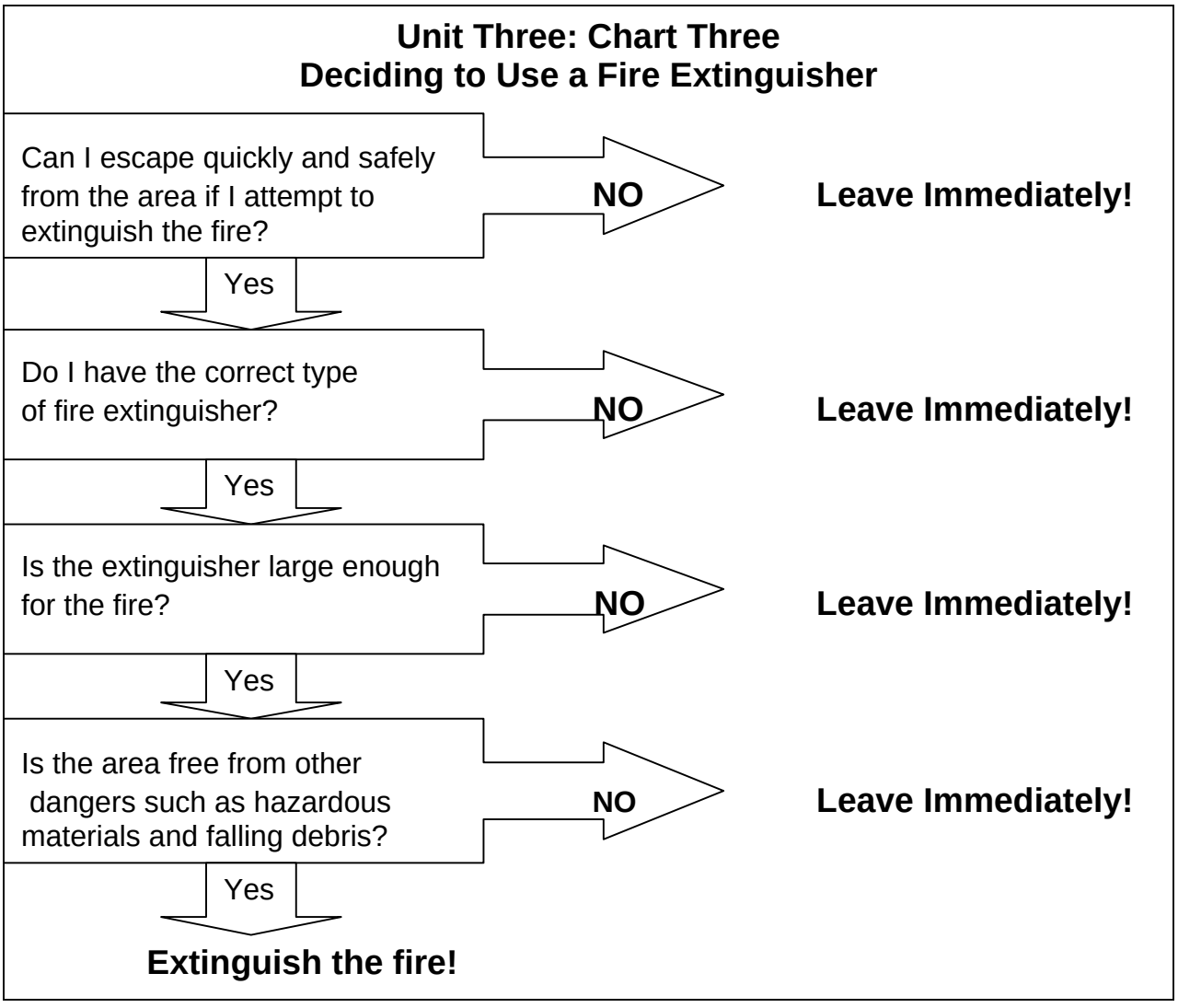
   a. Leave the building immediately.

   b. Shut all doors as you leave to slow the spread of the fire.

2. If all of the answers to the questions are "YES;"

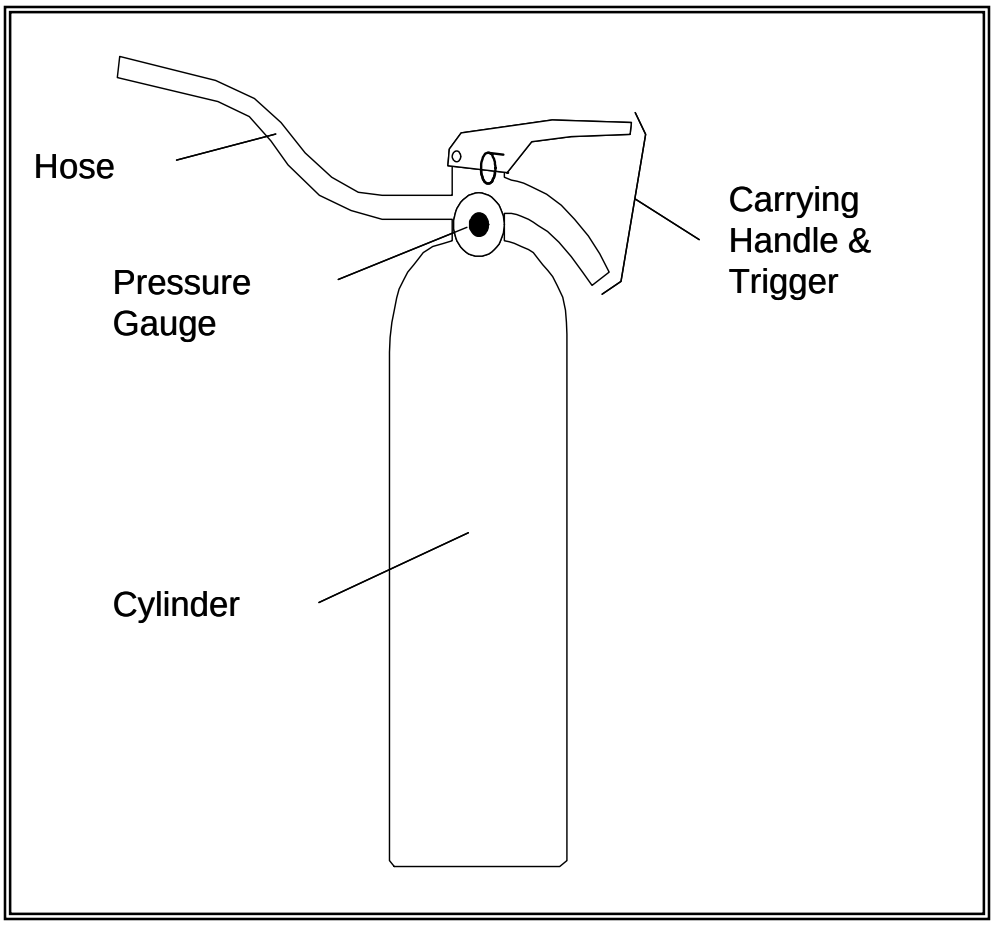
   a. You may attempt to extinguish the fire.

   b. Even if you answer "YES" to all of the questions, but feel unable to extinguish the fire, you should leave immediately.



Firefighting Resources continued

Unit Three: Fire Safety
Visual Four: Operating a Fire Extinguisher



H. Components of a Portable Fire Extinguisher

1. A portable fire extinguisher includes four components:

   a. A pressure gauge

   b. A hose

   c. A cylinder

   d. A carrying handle with trigger

2. You should always operate portable fire extinguishers in an upright position.

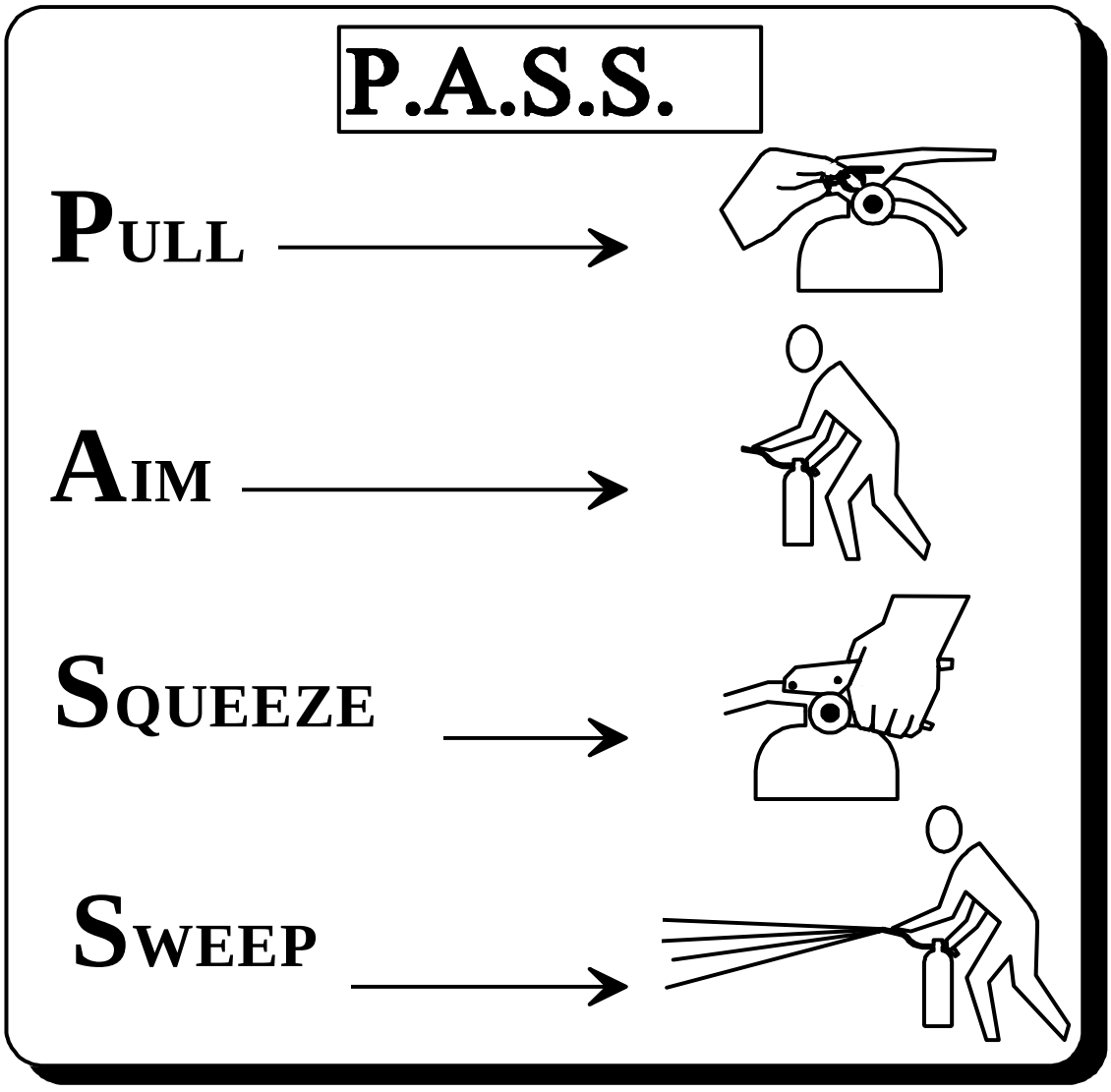
Firefighting Resources continued

I. The acronym for operating a fire extinguisher is P.A.S.S.: pull, aim, squeeze and sweep.

1. To ensure that the extinguisher is working properly, test it before approaching any fire.

2. Aim at the base of the fire.

Unit Three: Fire Safety
Visual Five: The P.A.S.S. system
for operating a fire extinguisher



VI. Fire Suppression Safety

A. As a CERT member, fire suppression will be one of your roles. However, even following a disaster, your personal safety must be your number one concern. You will be unable to help anyone if you are injured through careless size-up or unsafe acts.

B. Fire suppression safety rules include:

1. Use safety equipment at all times. Wear your helmet, goggles, dust mask, leather gloves, and heavy shoes. If you are not equipped to protect your personal safety, leave the building.

2. Work with a buddy. Buddies serve an important purpose. They protect your safety. Don't ever try to fight a fire alone.

3. Have a backup team, whenever possible. A backup team just makes good sense. A backup team can support your fire suppression efforts and can provide help if you need it.

4. Always have two ways to exit the fire area. Fires spread much faster than you might think. Always have a backup escape plan in case your main escape route becomes blocked.

5. Feel closed doors with the back of the hand, working from the bottom of the door up. Do not touch the door handle before feeling the door. If the door is hot, there is fire behind it. Do not enter! Opening the door will feed additional oxygen to the fire.

6. Confine the fire, whenever possible, by keeping doors closed.

7. Stay low to the ground. Smoke will naturally rise. Keeping low to the ground will provide you with fresher air to breathe.

8. Maintain a safe distance. Remember the effective range of your fire extinguisher. Don't get closer than necessary to extinguish the fire.

9. Overhaul the fire to be sure that it is extinguished—and stays extinguished.

Fire Suppression Safety continued

C. What CERTs don't do when suppressing fires is as important as what they should do. **DON'T:**

1. Don't get too close. Stay near the outer range of your extinguisher. If you feel the heat, you are too close.

2. Don't try to fight a fire alone. Remember that your first priority is your personal safety. Don't put yourself at risk.

3. Don't try to suppress large fires. Learn the capability of your equipment, and do not try to suppress a fire that is clearly too large for the equipment at hand (i.e., a fire that is larger than the combined ratings of available fire extinguishers).

4. Don't enter smoke-filled areas. Fire suppression in smoke-filled areas requires equipment that CERTs don't have.

VII. Hazardous Materials

A. Materials are considered hazardous if they have any of these characteristics listed below:

1. Corrode other materials.
2. Explode or are easily ignited.
3. React strongly with water.
4. Are unstable when exposed to heat or shock.
5. Are otherwise toxic to humans, animals, or the environment.

B. Hazardous materials include, but are not limited to:

1. Explosives.
2. Flammable gases & liquids.
3. Poisons and poisonous gases.
4. Corrosives.
5. Nonflammable gases.
6. Oxidizers.
7. Radioactive materials.

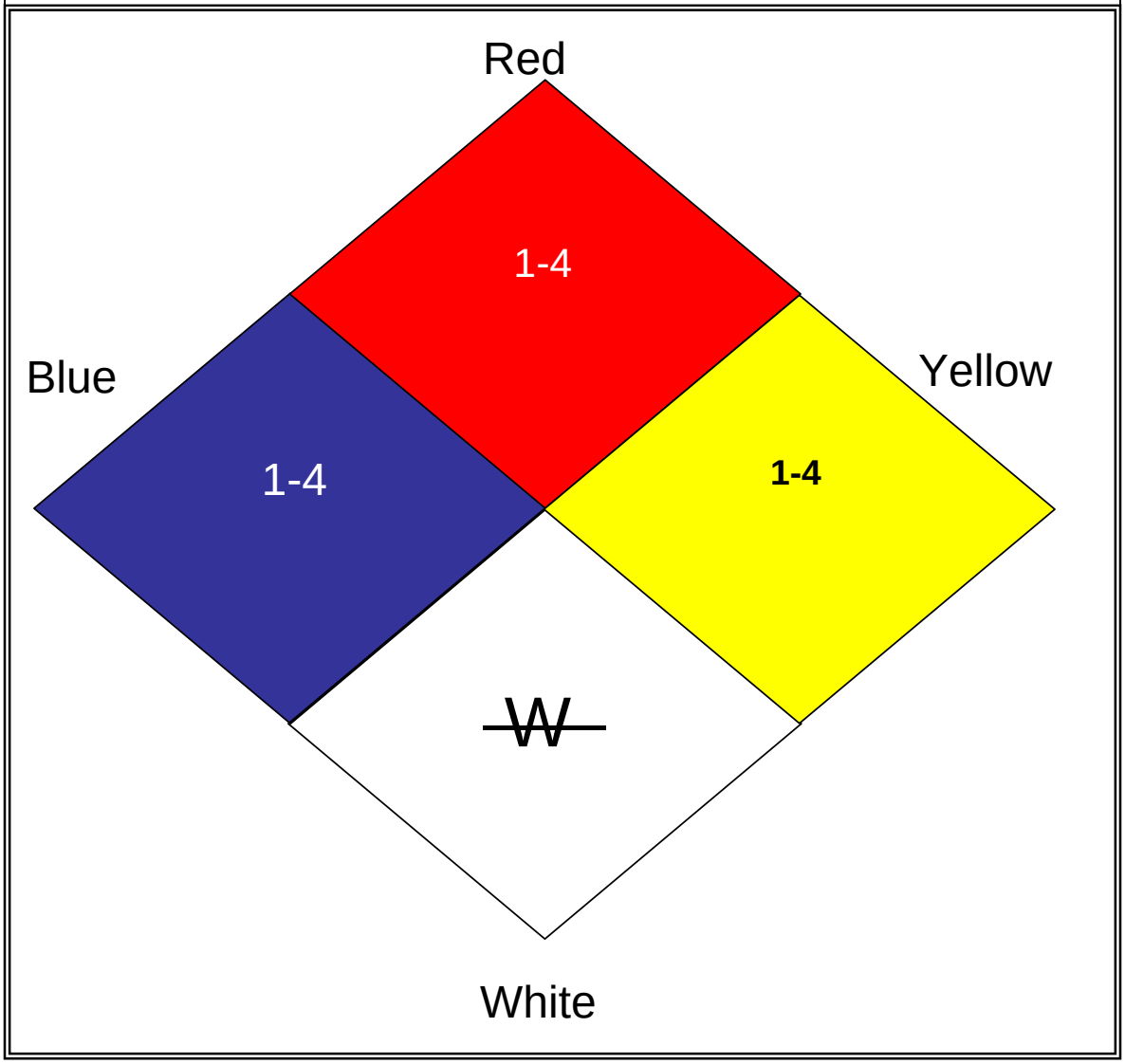
C. Knowledge that hazardous materials are present helps to protect CERT members' safety and is also valuable size-up information for first responders.

D. Hazardous materials pose an ever-present danger. They are stored in all types of locations and are transported by a variety of means.

Hazardous Materials (Continued)

E. Identifying Stored Hazardous Materials

Unit Three: Fire Safety
Visual Six: National Fire Protection Association 704 Diamond



The figure above is an NFPA 704 Diamond—the identification system instituted by the National Fire Protection Association. The NFPA 704 Diamond is a concise system for identifying the hazards associated with specific materials.

Hazardous Materials (Continued)

1. The NFPA 704 Diamond, showing four quadrants and hazard ratings, is a concise system for identifying the hazards associated with specific materials.

2. This placard would be found on a fixed facility.

3. The diamond is divided into four colored quadrants, each with a rating number inside of it. That number indicates the degree of risk associated with the material. The higher the number the higher the risk!

a. The red quadrant describes the material's flammability.

b. The blue quadrant indicates health hazard.

c. The yellow quadrant indicates reactivity.

d. The white quadrant indicates a material that is a specific hazard (such as elements that have an unusual reactivity with water and never be mixed with water or have water sprayed on them).

4. The numbers within the 704 Diamond are for professional firefighter use only. The numbers 1, 2, 3, or 4 will be in the center of the colored diamond. They indicate specific information professional firefighters will understand about health hazards, fire hazards, reactivity and specific hazards. These are explained in more detail in Visual Seven on page 26 in unit two.

5. **Community members who have received CERT training should consider these placards a 'stop sign'.** The only action to be taken when a facility is placarded with an NFPA 704 Diamond is to evacuate persons who are downwind of the danger to an uphill or upwind location.

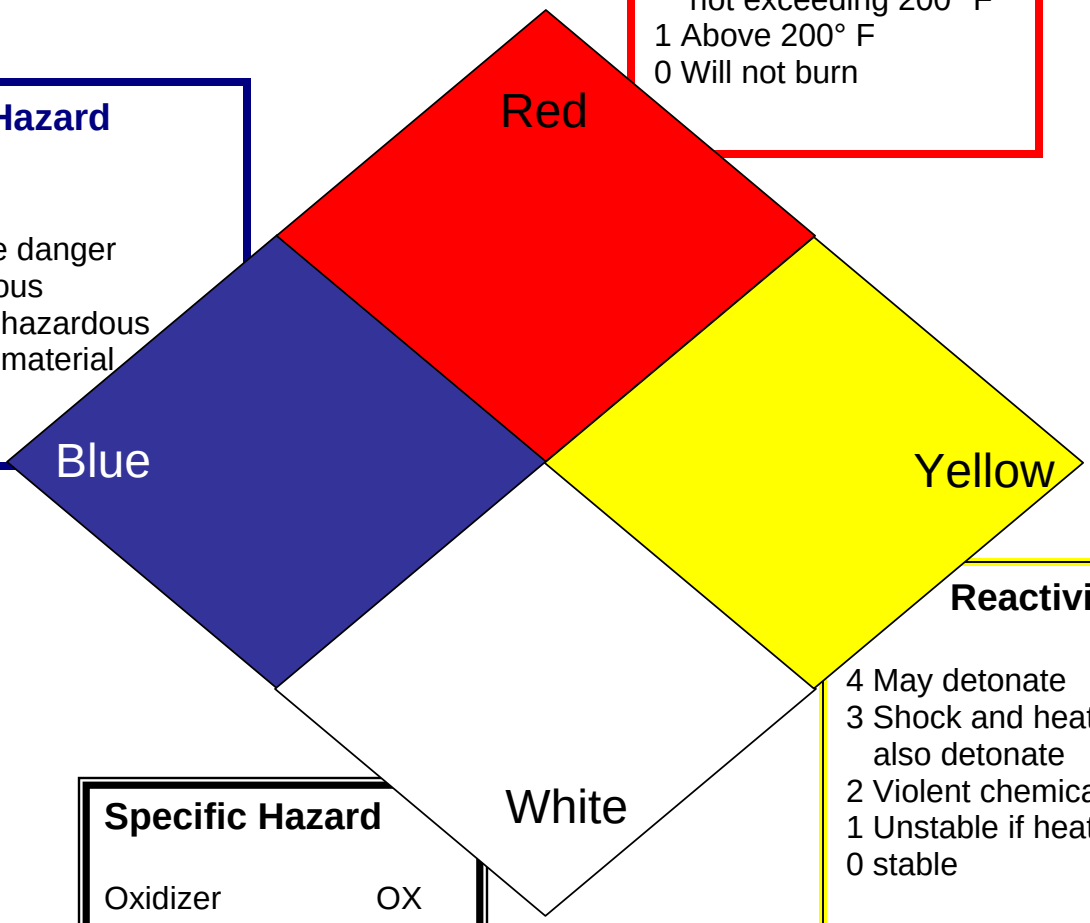
Unit Three: Fire Safety
Visual Seven: National Fire Protection Association 704 Diamond - Numeric Guide to Hazardous Materials

Fire Hazard

4 Below 73° F
3 Below 100° F
2 Above 100 ° F,
not exceeding 200° F
1 Above 200° F
0 Will not burn

Health Hazard

4 Deadly
3 Extreme danger
2 Hazardous
1 Slightly hazardous
0 Normal material



Reactivity

4 May detonate
3 Shock and heat may also detonate
2 Violent chemical change
1 Unstable if heated
0 stable

Specific Hazard

Oxidizer	OX
Acid	ACID
Alkali	ALK
Corrosive	COR
Use NO WATER	~~W~~
Radioactive	

The numbers within the 704 Diamond are for professional firefighter use only. The numbers 1, 2, 3, or 4 will be in the center of the colored diamond. They indicate specific information professional firefighters will understand about health hazards, fire hazards, reactivity and specific hazards

Hazardous Materials (Continued)

F. Identifying Hazardous Materials in Transit

1. The United States Department of Transportation has a system for identifying hazardous materials that are being transported. The system involves a color coded placard with symbols. The colors and symbols are understood by professional firefighters. They are highlighted in visual eight on page 28 of Unit Two.

2. **Like the NFPA 704 Diamond, the DOT placards should be a "stop sign" for CERT members.** For example; certain hazardous materials (e.g., anhydrous ammonia) are placarded as a nonflammable gas for domestic transport but as a flammable gas for international transport. Anhydrous ammonia is a flammable gas. A professional firefighter would know how to handle this situation; a member of the general public would not, even one trained in Community Emergency Response. Use extreme caution when approaching any vehicle in an accident. Notify emergency responders and evacuate persons around the danger and keep a safe distance from the hazardous material.

a. You should always err on the side of safety. Don't risk becoming a victim yourself. Do not assume that, because there is no placard, no hazardous materials are present.

b. Talk to drivers or train crew members whenever possible.

c. Treat any unknown situation as a hazardous materials incident.

3. This is general information about DOT placards.

a. These placards can be on any vehicle, not only tankers.

b. No placard is required for less than 1,000 pounds of many hazardous materials.

c. Sometimes drivers forget to change the placard when they change their cargo.

4. There are two other systems utilized for identifying hazardous materials. Each is slightly different than the Department of Transportation system. They are highlighted in visual nine on page 29 of Unit Two.

a. The United Nations system (UN).

b. The North American (NA) warning placards.

Unit Three: Fire Safety
Visual Eight: Department of Transportation Warning Placards

Orange

White

Red and White

Red

Yellow

White

Red

White and Red

Yellow and White

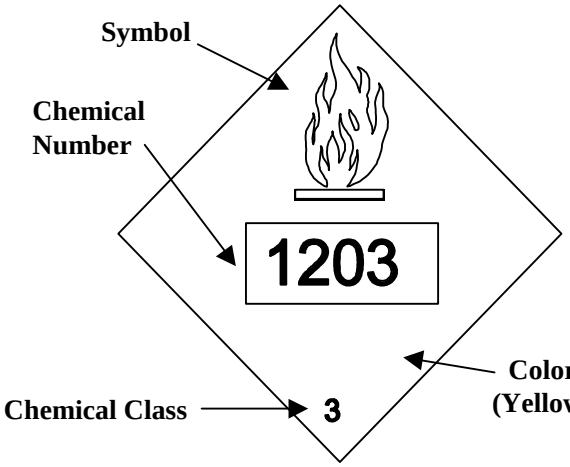
Blue

White and Black

The Department of Transportation (DOT) identifies hazardous materials which are in transit with Warning Placards.

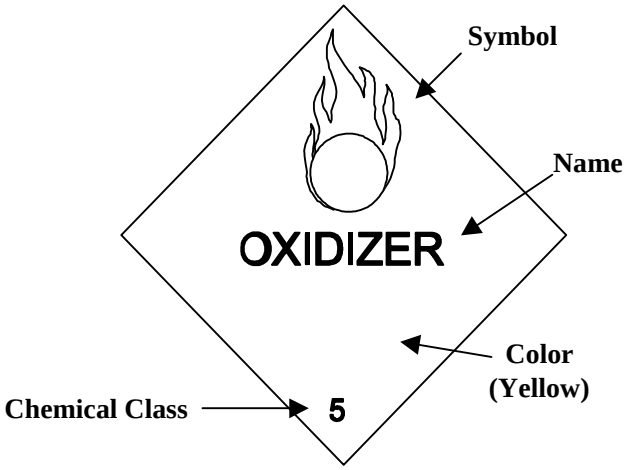
Hazardous Materials (Continued)

Unit Three: Fire Safety
Visual Nine: The North American Numbering System and United Nations Placarding System for Transport of Hazardous Materials



The North American Numbering System

- shows the hazard class in the bottom corner
- The chemical number in a white box in the center
- The hazard symbol at the top of the placard



The United Nations Placarding System

- Shows the hazard class in the bottom corner
- The chemical category in the center
- The hazard symbol at the top of the placard

VIII. Exercise: Suppressing Small Fires

A. Purpose: This exercise will provide you with experience in two key areas of fire suppression:

1. Using a portable fire extinguisher to suppress a small fire

2. Applying teamwork to fire suppression

B. Instructions: Follow the steps below to complete this exercise. Visual ten follows on page 31, Unit Two.

1. Work in two-person teams. Team members must communicate with each other. The emphasis is on safety and teamwork.

2. Each team member will be provided with a portable fire extinguisher.

3. Team Member 1 should assume the "ready" position, with pin pulled, extinguisher aimed and upright, approximately 20 to 25 feet from the fire.

4. When ready to approach the fire, Team Member 1 should say, "**Ready**." Team Member 2 should repeat, "**Ready**."

5. As Team Member 1 begins to move forward, he or she should say, "**Going in.** "Team Member 2 should **repeat** the command and stay within reach of Team Member 1.

6. Both team members should move toward the fire. Team Member 1 should watch the fire and Team Member 2 should stay close to Team Member 1, keeping his or her hand on Team Member 1's shoulder. Team Member 2's job is to protect Team Member 1.

7. Team Member 1 should approach the fire from the windward side (i.e., with the wind to the team member's back). When approximately 10 feet from the fire, Team Member 1 should begin to discharge the extinguisher at the base of the fire, continuing the approach until the range for the extinguisher is optimal.

8. Team Member 1 should sweep the base of the fire until it is extinguished.

9. When Team Member 1 is exiting the fire area, he or she should say, "**Backing Out**." Team Member 2 should **repeat** the command. Participant 2 should guide Participant 1 from the area with his or her hands as Participant 1 continues facing the fire and looking for hazards.

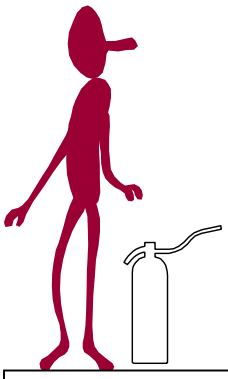
10. After the fire is extinguished, trade positions and repeat the exercise

Unit Three: Fire Safety
Visual Ten: Suppressing Small Fires Exercise

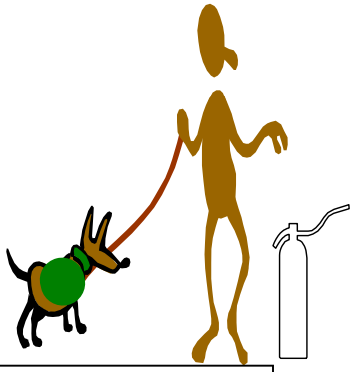
Flammable Liquid Fire

Instructor No. 2
Safety Officer

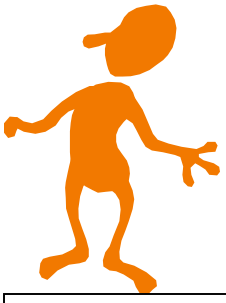
Wind
Direction



Participant No. 1

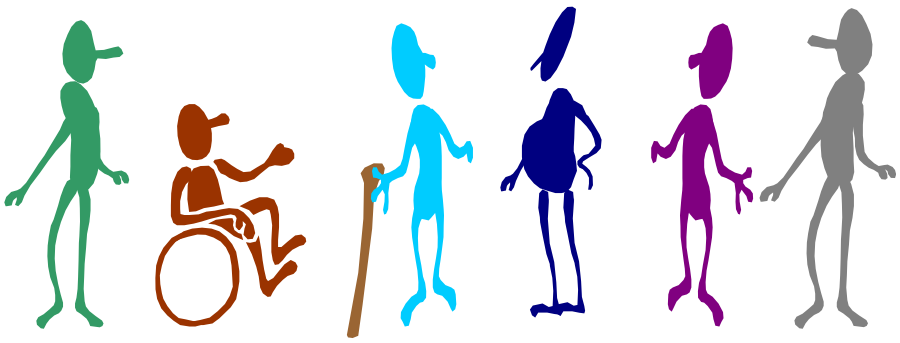


Participant
No. 2 and her
Service Animal



Instructor No. 1

Observers



NEXT . . .

1. If your CERT class continues on the same day, take your break and return to this classroom.

2. If your CERT class continues on another day (next week or next month) your **Homework Assignment** is as follows: Read and familiarize yourself with Unit 4: Disaster Medical Operations pt. 1

End of Unit Three